



# **Greater than the sum of its parts**

**Constructing an individual-level score to  
measure women's achievement and gender  
equality in Peru**

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Thesis submitted to University College London (UCL)  
for the Degree of Doctor of Philosophy

Institute for Global Health

12 March 2018



I, Geordan Shannon confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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*12 March 2018*

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# ABSTRACT

## Background

Most international measures of gender equality aggregate data at a national level and do not allow disaggregated analyses within populations. I aimed to construct an index reflecting women's achievements and gender equality at the individual level using existing, nationally-representative data from Peru as an exemplar.

## Methods and Results

I identified 25 international compound measures of gender equality and critically reviewed ten. I conducted 46 semi-structured interviews with women and three focus group discussions with service providers in rural and urban areas of the Peruvian Amazon to explore local constructs of gender equality. Guided by qualitative findings, the score was designed to quantify both individual *achievement* and gender *equality* across several domains, calculating the gap between actual and optimal individual values. Using the nationally-representative 2015 ENDES survey, I identified 43 indicators of women's achievement and gender equality, and assessed their content and construct validity using cognitive interviews. I used Exploratory and Confirmatory Factor Analysis to aggregate selected indicators into a Women's Achievement and Gender Equality score (WAGE) for 20,111 ENDES participants. The WAGE Score had a median value of 0.35 (IQR 0.24, 0.43), suggesting that there was a 35% gap between actual and optimal achievement and equality in Peru. The WA and GE Score median values were 0.29 (IQR 0.13, 0.40) and 0.40 (IQR 0.31, 0.49) respectively, indicating that there was greater inequality than under-achievement. Finally, I used the WAGE Score to describe within-country gradients of women's achievement and gender equality in Peru, which varied significantly by urban/rural location, ethnicity and wealth.

## Conclusion

It was feasible to create an individual-level score reflecting women's achievement and gender equality in Peru using existing household survey data. Re-conceptualising measures of women's achievement and gender equality to the individual level, the WAGE Score describes gradients of gender equality and women's achievements in Peru.



## ACKNOWLEDGEMENTS

As is the custom in my home country, Australia, I would like to start by acknowledging the Traditional Owners – past, present and future – of the land on which I was born, and on which I have worked. I would also like to acknowledge the Indigenous people of Peru, where this research was performed, and their ancestors.

They say that it takes a village to raise a child. This thesis has been raised, as it were, by the efforts of a broader village that spans across countries, languages and cultures.

Starting from where it all began: my family. Thank you is not a strong enough word to recognise the love and support that my family have provided me during the course of this research, especially my mum Julie, my dad John, my granny Joy, my sister Sacha, her partner Joel, my uncle Ian, my aunt Chris, and my two exceptional niece/cousins Zarli and Xabby. My partner Jeremy, whose understanding and gentle, consistent support gives me confidence. My extended family, including the Wensleys, the Butlers, the Prouds, the Davidsons, the Foxtons, the Tonkins, the Harrisons, the Geddass, the Maregas, the Jacks, and the Simmons. It is because of you that I'm here, and for you that I hope to keep making the world just a little better every day. In the lead up to and during the course of this thesis my family has suffered many losses, and my heart is heavy that I cannot share the end result of this thesis with my uncle John, my uncle Rick, my aunty Dorn, my grandfather Bruce and my nephew (of sorts) William. At least not in this realm.

My interest in gender equality and Indigenous and rural health began in Australia, and I want to thank my strong feminist colleagues and friends from back home – Kate, Kate, Mel and more – for your support and encouragement. Also, the people and professional institutions back home that helped support me during this research, including Katherine Hospital. Finally, the many Indigenous Australians who I know, who I have learned from, and who I've worked with: thank you.

In Peru, where the research was based, I found another family, of sorts. Thank you to DB Peru, and in particular Diana and Renzo, for providing the wonderful foundation for this work. Thank you for being open, supportive and encouraging when times were tough, and for allowing me to develop personally and professionally. Thank you to the amazing DB Peru volunteers – Jacqui, Silvia, Laura, Adam, Sara, Chris, Paul, Natalie, Anne, Josephine, Amy and everyone else – I consider you lifelong friends. To the generosity of the *Centro de Investigación Interdisciplinaria en Sexualidad, SIDA y Sociedad* at Universidad Peruana Cayetano Heredia under the guidance of Carlos and Angelica: thank you for being so forgiving with my Spanish and thank you for helping to push my ideas using your radical and critical academic backgrounds. To the staff in Loreto who work tirelessly for improving health in their region and who have been such engaged clinical and research partners: Zulema, Jessica, Guillermo, Sylvia and Sylvia, Ines, Enrique and the staff at the Hospital Regional, Diresa de Salud, and Mazan. My research assistants, Claudia and San Valentin: you are so patient and so visionary and I hope your aspirations continue to expand your careers. In Iquitos, my dear friend Monica and the staff at Nativa Apartments, thank you for being my home away from home! On the river, thank you to Pilar, Circo, Leslie and Fran for adopting me as their *gringa*-daughter.

It is hard to thank a whole region of people, but I hope to dedicate this research to the Lower Napo River, and all 25 communities that are situated there. These communities have treated this stranger as a friend. I know it isn't perfect out there, but if only more folk around the world could take a few pages out of your collective book, the world would be more honourable and kind. In these communities in particular, thank you to the *promotores* (community health workers): Ricardo, Rolando, Greti, Never, Jose, Hernan, Elmer, Federico, Melita, Jamie, Iraida, Julio, Raul, Duglas, Joaquin, Humberto, Carlos. You are role models for more people than you think.

In the UK, I am so grateful to have a home base in the UCL Institute for Global Health, which makes going to work every day a joy. My fellow PhD students, especially Lu, Dan, Judith, Andrea, YanYan, Komal, thank you! To my exceptional colleagues in the Centre for Economics of Global Health and the Centre for

Gender and Global Health: you are wonderful, and I can't imagine a more perfect fit. In particular, Jenevieve, thank you for being such a great role model for a young academic, and thank you for both pushing me intellectually and supporting me in all parts of life. Thank you Neha for the coffee, and thank you Ayesha for the chai. And thank you to Nora and Jane, who started this journey with me. Outside UCL, thank you to the Alto Foundation and all those involved in their work, for being such great collaborators. Thank you to Dick and the Australia Day in the UK Foundation, who have been unlikely friends and allies, and have opened doors into a world beyond academia.

This thesis has been a vessel for many things: personal and professional growth, change of perspective, new dialogues, and, most importantly a deeper understanding and appreciation for the importance of gender in global health. As a part of this journey, someone who has become my kindred-soul-sister-twin, Annie, your generosity of spirit and zest for life ignite me. My inspirational colleagues from Global Health Disrupted, especially Winnie, Felice and Gulraj, thank you for being phenomenal and optimistic and believing in the power of humanity. The Stema team, particularly Des and Nicole, thank you for daring to dream with me, and thank you for being such amazingly strong and astute and dependable colleagues and friends.

Transcending all of these experiences and settings have been my two amazing supervisors, Audrey Prost and Jolene Skordis-Worrall, who were open enough to accept my request to join the IGH, who were strong enough to help me develop and deepen my thoughts, who were patient enough to help me find structure and meet deadlines, and who were sharp enough to help hone my passions. You have demonstrated kindness, empathy, passion, humour, academic rigour, bravery, and humanness and are two women who I consider to be role models. Working with you both has changed the course of my life personally and professionally. Thank you.



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## LIST OF ACRONYMS

AFR	Adolescent Fertility Rate
AGDI	African Gender and Development Index
AIDS	Acquired Immunodeficiency Syndrome
ASEAN	Association of South East Asian Nations
ARROW	Asian-Pacific Resources and Research Centre for Women
AWID	Association of Women's Rights in Development
AWPS	African Women's Progress Scoreboard
BMI	Body Mass Index
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CHWs	Community Health Workers
COSMIN	Consensus-based Standards for the selection of health Measurement Instruments
CSDH	Commission on the Social Determinants of Health
DALY	Disability Adjusted Life Years
DFID	Department for International Development
DHS	Demographic and Health Survey
DV	Domestic Violence
EGI	Environment and Gender Index
ENAH0	Encuesta Nacional de Hogares (National Household Survey)
ENDES	Encuesta Demográfica y de Salud Familiar (Demographic and Health Survey)
EOC	Essential Obstetric Care
EU	European Union
FGM	Female Genital Mutilation
FRRR	Full Rights Realisation Rate
GAD	Gender and Development (GAD)
GBV	Gender-Based Violence
GDI	Gender and Development Index
GDM	Gender and Development Measure
GDP	Gross Domestic Product
GE	Gender Equality
GEEE	Gender Empowering Enabling Environment
GEI	Gender Equity Index
GEIE	Gender Equality Index, Erasmus
GEM	Gender Empowerment Measure
GEMS	Gender Equitable Men Scale
GGGI	Global Gender Gap index
GGI	Gender Gini Index
GGM	Gender Gap Measure
GI	Gender Inequality
GII	Gender Inequality Index
GPS	Global Positioning System
GSi	Gender Status Index
HDI	Human Development Index
HHRR	Hospital Regional

HIV	Human Immunodeficiency Virus
HPI	Human Poverty Index
HRBA	Human Rights Based Assessment
HRIA	Human Rights Impact Assessment
IA	Impact Assessment
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICPD	International Conference on Population Development
IGES	Individualised Gender Equality Score
IGeES	Individualised gender equality and Empowerment Score
IGWG	Inter-Agency Gender Working Group
ILO	International Labour Organisation
IMR	Infant Mortality Rate
INEI	Instituto Nacional de Estadísticas e Informáticas (National Statistics Institute)
IQR	Inter-quartile range
IWRAW	International Women's Rights Action Watch
KN	Knowledge Network
LGBT	Lesbian, Gay, Bisexual and Transgender
LE	Life Expectancy
LNR	Lower Napo River
LMICs	Low and middle-income countries
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey
M&E	Monitoring and Evaluation
MGDI	Multidimensional Gender-related Development Index
MGII	Multidimensional Gender Inequalities Index
MMR	Maternal Mortality Ratio
MS	Metabolic Syndrome
MoH	Ministry of Health
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Cooperation and Development
OHCHR	Office of the High Commissioner on Human Rights
OP	Optional Protocol
OR	Odds Ratio
PAHO	Pan-American Health Organisation
PHC	Primary Health Care
RSW	Relative Status of Women Index
RWD	Relative Women's Disadvantage Index
SD	Standard Deviation
SDG	Sustainable Development Goal
SDH	Social Determinants of health
SIGE	Standardised Index of Gender Equality
SIGI	Social Institutions and Gender Index
SIS	<i>Seguro Integral de Salud</i>
SP	Service Providers
SRH	Sexual and Reproductive Rights
STD	Sexually Transmitted Disease

STI	Sexually Transmitted Infection
SWAp	Sector-Wide Approach
UCL	University College London
UDHR	Universal Declaration of Human Rights
UK	United Kingdom
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
UPCH	Universidad Peruana Cayetano Heredia
US	United States
USAID	United States Agency for International Development
VAW	Violence Against Women
WAD	Women and Development
WAS	Women's Agency Scale
WDG	Women's Disadvantage-related Gender index
WEAI	Women's Equality in Agriculture Index
WEM	Women's Empowerment Matrix
WEOI	Women's Economic Opportunity Index
WHO	World Health Organisation
WID	Women in Development
WQoL	Women's Quality of Life Index



# CHAPTER 1: INTRODUCTION

## 1.1 Rationale for the thesis

Equality has powerful effects. Traditionally, scholars have positioned equality in socioeconomic status as the primary driver of economic growth, health, and wellbeing (Marmot, 2005; Marmot, 2010; Ostry, et al., 2014; Pickett & Wilkinson, 2009). Gender equality has only recently been recognised as a social and structural determinant of health and economic development in its own right (Malhotra, et al., 2002; Sen & Östlin, 2007). There is now widespread consensus that gender equality promotes economic growth, lowers fertility, reduces child mortality, and improves nutrition (Abu-Ghaida & Klassen, 2004; Commission on Social Determinants of Health, 2008; McDonald, 2000; OECD Development Centre, 2012). The Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) brought an international focus to women's empowerment and gender equality as international development targets (Abu-Ghaida & Klassen, 2004; Sen & Östlin, 2007; United Nations, 2015). The SDGs focus on women's empowerment and gender equality in the context of eliminating all forms of discrimination, inequalities, poverty and violence against women (United Nations, 2015). Gender equality and women's empowerment, however, are more than simply an instrument to promote economic growth or public health; they are a human right and "a matter of fairness and social justice" (Marmot, 2010, p. 15).

Despite almost universal recognition of the importance of women's empowerment and gender equality in international health and development, there has been sluggish progress in achieving globally. For example, MDG 3 – to promote gender equality and empower women – was severely limited in its scope (Fehling, et al., 2013) and made slow progress, with poor or mixed gains in higher education, employment and political representation (United Nations Development Group, 2010; World Bank, 2017). Despite sustained global efforts and dialogue for over 30 years, true equality between men and women is far from being realised (UNDP, 2018). With the launch of the Sustainable Development Goals in 2016, there is a need for a renewed focus on women's empowerment and gender equality to reduce health and social inequities, and to transform the lives of men and women globally (Commission on Social Determinants of Health, 2008; United Nations,

2015). Related to this, the World Health Organisation and United Nations recognise the need for a large-scale, quantitative evidence-base to monitor women's empowerment and gender equality globally (Sen & Östlin, 2007).

With the increased emphasis on tracking the effects of interventions to improve women's empowerment and gender equality spurred by international development targets, measures derived from internationally standardised data are essential tools to ensure policy and programmes are well-directed and effective. Yet the translation of multi-dimensional concepts such as gender equality into instrumental, quantifiable measures for policy-making and evaluation is a complex process fraught with challenges. Not only does gender equality have a more complex definition than other markers of health and development, but also needs a much more nuanced approach to realising desired outcomes. As Willis observes: "...the implication that empowerment can be delivered in the same way as a standpipe or school building overlooks the complexities of gendered power relations" (2016, p. 106).

Many scholars have warned of the 'instrumentalisation' of gender equality (Batliwala & Dhanraj, 2004; Beneria, et al., 2016; Chant & Sweetman, 2012; Cornwall & Edwards, 2010; Razavi, 2018). In fact, some have questioned whether or not political or metaphysical concepts such as empowerment or equality should be either defined or measured at all (Batliwala, 1993). Kabeer (1999, p. 435) summarised these challenges as follows:

*Advocacy on behalf of women which builds on claimed synergies between feminist goals and official development priorities has made greater inroads into the mainstream development agenda than advocacy which argues for these goals on intrinsic grounds [...] However, the success of instrumentalism has also had costs. It required the translation of feminist insights into the discourse of policy, a process in which some of the original political edge of feminism has been lost. Quantification is one aspect of this process of translation. Measurement is, of course, a major preoccupation in the policy domain, reflecting a justifiable concern with the cost/benefit calculus of competing claims for scarce resources. And given that the very idea of women's empowerment epitomises for many policy makers the unwarranted intrusion of metaphysical concepts into the concrete and practical world of development and policy, quantifying empowerment appears to put the concept on more solid and objectively verifiable grounds.*

This serves not as a disincentive but as a warning to ensure that measures of women's empowerment and gender equality, if constructed, are based on clear conceptual premises, and with care to ensure that, as much as possible, they reflect the reality of women's and men's lives.

Multiple attempts have been made to measure gender equality at a national level in order to track national progress and facilitate international comparisons. However, aggregate gender equality measures may remain blind to potentially large within-country gradients of gender inequality. The importance of measuring gender inequalities at a sub-national level becomes apparent when considering intersections of gender inequality and other social identities: gender inequalities are experienced differently by different people, and within a national setting this may be influenced by intersecting aspects of socioeconomic status, ethnicity, ability, and age. In the context of significant national transitions, including increasing urbanisation in developing countries, there is a need for an approach to measuring gender inequality with sufficient granularity to detect persisting or evolving national or intra-urban heterogeneities (Chant & McIlwaine, 2016). The adoption of the SDGs represents a shift in international development priorities, towards the recognition of subnational complexities (see for example: SDG 5, to achieve gender equality and empower all women and girls; SDG 10, to reduce inequalities between and within countries; and SDG 11, sustainable cities and communities) (Willis, 2016). However, as Chant and McIlwaine (2016, p47) argue, the SDGs fail to differentiate between men and women "in different circumstances, socially or geographically, especially in terms of rural-urban residence and intra-urban heterogeneity."

The measurement of gender inequalities at a subnational level also speaks to the importance of geographies of gender and power within a country. Increasing urbanisation and demographic transitions worldwide mean that women will comprise the majority of urban citizens in the future (Chant & McIlwaine, 2016). There is evidence to suggest that women will face gendered health risks depending on their immediate living environment, compounded by other determinants of health such as poverty (Chant & McIlwaine, 2016; Commission on Social Determinants of Health, 2008; Sen & Ostlin, 2007). Such spaces and places may be conceptualized as social and ideological constructs, which are, in turn, shaped by

gendered power relations (Raju, 2016). Despite a recognition of the changing nature of the urban landscape, and the gendered nature of this change, evidence on intracity disparities in wellbeing – from a gender, social or economic perspective - is poorly defined or supported by data (Chandrasekhar & Mukhopadhyay, 2008 ; Chant & McIlwaine, 2016).

There is a need for an individual-level approach to measuring women's achievements and gender equality. Appropriate gender-related measures are necessary for developing and evaluating interventions to promote women's achievements and gender equality in health and development (Nanda, 2011). An individual score capturing their different dimensions and constructed from accessible existing global data sources, such as household surveys, could facilitate a more nuanced analysis of these phenomena at a sub-national level, as well as between and within social groups. Gender achievement and equality scores could then be aggregated at local, regional and national levels, as well as over layers of social identity to guide policy and programmes.

Therefore, the aim of this thesis is *to build a composite index that reflects women's achievements and gender equality at an individual level using existing household survey data*. To do so, this thesis addresses the key conceptual challenges described above and uses a mixed-methods approach to understand and, ultimately, quantify women's achievements and gender equality at the individual-level.

This chapter provides an overview of the rationale for the thesis and a summary of its methods. I position this thesis at the intersection of various fields of scholarship, including global health, gender studies, and international development. As such, this chapter provides space to explore key theoretical and historical positions that come together in the construction of an individual measure of women's achievement and gender equality. I begin by introducing key terms such as gender, gender equality, women's empowerment and achievement, and provide a historical context to the gender, health and development movements. I then describe the research questions, objectives and structure of the thesis. To frame my methodology, I establish the mixed-methods nature of my work, and the various stages of multidimensional index construction. I finish by contextualising my research in respect to rural Peru, where my fieldwork was based.



## 1.2 Theoretical and historical overview

### 1.2.1 Definition of gender

The World Health Organisation (WHO) defines gender as “the socially constructed roles, behaviour, activities and attributes that a particular society considers appropriate for men and women” (WHO Western Pacific Region, 2017, p. online). Whereas sex refers to biological differences in the primary and secondary characteristics between males and females (Little, 2013), gender refers to “social attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys, as well as the relations between women and those between men” (UN Women, 2001, p. 1). Gender is recognised as a socially constructed phenomenon, produced and reproduced through human interactions (Butler, 1990; Lorber, 1991; United Nations, 2001).

### 1.2.2 Gender, power and gender equality

Gender and power are inter-related. Gender can be conceptualised as a system of social stratification that partly determines interpersonal interactions and shapes access to resources and power (Sen & Östlin, 2008; Springer, et al., 2012). As a social institution, gender has been conceptualised as a *process* that creates distinguishable social identities, which are then ranked and valued unequally, and consequently produce unequal opportunities and life chances (Lorber, 1991). Traditionally, men have assumed roles of relative power in relation to women, although this is not always the case.

The ideas that gender and femininity are relational concepts, and that power tends to serve men, was articulated in the early 20<sup>th</sup> century by Gilman, who wrote: “She has held always the place of a preposition in relation to man. She has always been considered above him or below him, before him, behind him, beside him, *a wholly relative existence*” (Gilman, 1911, quoted in Wingwood & DiClemente) (2000, p. 539). These ideas were further developed by de Beauvoir (1949), who highlighted the ways in which women were often defined in relation to men and constructed as the ‘other’. Postmodern feminists used Foucault’s analysis of power, as

articulated in *Discipline and Punish* (1975) and *The History of Sexuality* (1978), to describe the effects of power relations on sexuality and understand how power shapes the body as a cultural entity. In Foucault's view, power in the 'modern' age is a productive field which is not reducible to the exercise of political might through brute force, but operates through actions and language, and permeates "all discursive formations" (Charmes & Wieringa, 2003; McNay, 1992). In Foucauldian analyses, power and gender are perceived as socially reproduced, and are passed on inter-generationally through social structures. (King, 2004)

Gender theorist Raewyn Connell (1987). argues that there are three social structures that characterise gender and power relationships between women and men. The first is the sexual division of labour, which is the segregation of work along gender lines or the differential skilling or training by sex (Connell, 1987). The second is the sexual division of power, referring to imposition of hegemony, an inequality of resources, or the use of force or violence (ibid). The third is cathexis, or the ways in which individuals and society understand and present emotional and sexual interest as well as construct social norms for these (Connell, 1987; Foucault, 1978). This basic framework enables the identification of social structures that reflect power differentials between men and women. The basic distinction between unequal gender relations in labour, power, and personal interactions is reflected in many current measures of gender inequality, and will be discussed further in subsequent chapters.

Given the inherent links between power and gender, it is important to define the concepts of gender equality and inequality. Gender equality is conceptualised as equal opportunities and life chances, and defined by the UN as the "equal rights, responsibilities and opportunities of women and men and girls and boys" and when "the interests, needs and priorities of both women and men are taken into consideration, recognising the diversity of different groups of women and men." (UN Women, 2001, online) Gender inequality, conversely, is defined as difference in opportunities or treatment due to perceived differences based on gender (Kolb, 2008).

### 1.2.3 Progressive and contemporary gender scholarship

Traditionally, sex and gender have been theorised in binary terms, and women were defined by their ‘otherness’ to men (de Beauvoir, 1949; Gilman, 1971). However, post-modern and post-structural theorists contest the notion of gender as a binary concept, and instead refer to a spectrum of gender identities (Monro, 2005). This is consistent with growing recognition of numerous gender identities around the world; many societies have recorded traditions of third, fourth, or more gender roles such as in the ‘two-spirit’ people in Navajo culture (Warnke, 2008). These examples have been cited by the gay and trans rights movements to challenge hetero-normative notions of gender and sexuality (Monro, 2005).

Whilst there is currently a push for a more nuanced understanding of gender as a spectrum of identity in the health and development sphere (Adam, 2017; Goshal & Knight, 2016), the majority of work currently remains limited to a binary notion of gender (Hawkes & Buse, 2013). In fact, scholars are still fighting to overcome gender-blindness in health and development, for example by ensuring data are at the very least disaggregated by male/female sex (ibid). Much of the analyses in this thesis therefore remain constrained by data collected and framed within the enduring binary gender paradigm, but recognise this as an area that needs significant development.

### 1.2.4 Gender equality, women’s empowerment, and women’s achievements

Women’s empowerment and gender equality are terms that are often used interchangeably in global health and international development. Whilst *gender equality* refers to the relative position of each gender in relation to the other, *empowerment* is a term that is more contested in contemporary literature. It is “a broad concept that is used differently by various writers, depending on the context or circumstance” (Alkire, et al., 2013, p. 1). Empowerment has been conceptualised at various levels, from the individual to the institutional level. Bennett (2002, p. 13) described empowerment as “the enhancement of assets and capabilities of diverse individuals and groups to engage, influence, and hold accountable the institutions

which affect them.” Women’s empowerment, whilst related, is recognised to encompass specific elements that distinguish it from economic or social empowerment (Malhotra, et al., 2002). For example, women can assume various other social identities that cut across categories of disadvantage, and experience disadvantage through both intra-familial and household relations (ibid).

Some gender scholars take issue with the use of the term ‘women’s empowerment,’ arguing that it denotes the process of a power transfer from the powerful to the less powerful, and thus neglects the inherent power that individuals already possess:

*The predominant image evoked by international development agencies when they talk of empowerment is of women gaining the (material) means to empower themselves as individuals, and putting this to the service of their families and communities. This tends to neglect what women are doing for and by themselves to bring about change in their own and other women’s lives (Cornwall & Edwards, 2010, p. 1).*

The term ‘empowerment’ has also been appropriated by instrumentalist forms of advocacy, which tend to view women’s empowerment as a means to an end, rather than as an end in itself: “Women are vaunted as a ‘weapon against poverty’ (DFID 2006: 1), their empowerment extolled as the solution to a host of entrenched social and economic problems” (Cornwall & Edwards, 2010, p. 1)(see also Chant, 2016; Cornwall & Edwards, 2010; Kabeer, 1999; Razavi, 2018). Critics also highlight conceptual and methodological weaknesses of gender and empowerment metrics, including lack of data on men, and lack of information on “aspects of poverty relevant to women at the grassroots” (Chant, 2006, p. 201). Further, scholars are critical of the framing of empowerment as a “series of technical goals mainly to be implemented by the very actors and institutions who have blocked their realisation in the past” (Kabeer, 2005, p. 22)

To overcome these critiques and come to a common understanding, Kabeer defines empowerment as “the ability to exercise choice” (1999, p. 436). Kabeer’s framework for empowerment includes three interrelated dimensions: *resources* reflect preconditions to empowerment, such as material resources and human and

social capital, as well as “future claims” to these resources; *agency* pertains to the *processes* of decision-making, negotiation, and manipulation which ultimately lead to people’s power to define their own life choices and pursue their own goals; *achievements* represent wellbeing outcomes<sup>1</sup> (ibid). This approach roughly aligns with Sen’s capabilities model, which positions the potential for people to live the lives they want as a function of both *beings* and *doings*, with *functioning achievements* a reflection of the *beings* and *doings* realised by individuals (Sen, 1985).

In both Kabeer’s and Sen’s models, *achievements* (or, *functioning achievements*) represent the outcome of *resources* (*beings*) and *agency* (*doings*). In a way, *achievement* is a manifestation of multiple preconditions experienced or exercised prior to the achievement itself. *Achievements*, therefore, have the potential to reflect to some extent the complex processes of empowerment. Furthermore, being an outcome-oriented concept, *achievements* may provide an identifiable and measurable partial proxy for empowerment. However, a lack of uniformity in observed achievements in a given society should not automatically be interpreted as evidence of inequality given the heterogeneous nature of how individuals value *being* and *doing* (Kabeer, 1999).

The concept of women’s achievement emerged during the thesis as a separate yet important concept to gender equality. Although this concept will be established further in Chapter 3, here I define *achievements* in the vein of Kabeer and Sen, in that they reflect the outcome of a complex process of individual ability, available life opportunities, and the freedom to act on these opportunities (Kabeer, 1999; Waage, et al., 2010). In the context of this research, participants’ notions of gendered achievements could be thought of as a measurable endpoint of their functionings and capabilities.

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<sup>1</sup> Kabeer, however, does not explicitly define what constitutes a well-being outcome. Instead she leaves this open to the reader to extrapolate. Sen recognises wellbeing as “the freedoms and capability to make choices and act effectively with respect to, for example, health, education, nutrition, employment, security, participation, voice, consumption, and the claiming of rights” (Waage, et al., 2010, p. 1009)

### 1.2.5 From “Women in Development” to “Gender and Development”

Women’s rights have been codified into international law through legally-binding treaties, including the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW) (UN Women, 2009). CEDAW, also known as the international bill of rights for women, was adopted in 1979 and defines discrimination against women as "...any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field" (United Nations General Assembly, 1996, p. 2) The CEDAW is one of the most widely ratified treaties but also has many expressed reservations which are incompatible with the purpose of the agreement itself (UN Women, 2009; Zwingel, 2005). This poses a significant challenge to the realisation of women’s rights internationally.

The four World Conferences on Women held between 1975 and 1995 united the international community behind a common set of objectives for the advancement of women everywhere, in both public and private life, and in health, human rights, and development (UN Women, 2000; Beneria, et al., 2016). The Beijing Platform for Action was adopted unanimously at the Fourth World Conference on Women, and provided a ‘roadmap’ for action in twelve key areas of concern: poverty, education, health, violence, armed conflict, the economy, power and decision-making, institutional mechanisms, human rights, the media, the environment, and the girl child (UN Women, 2000). This Conference also marked a shift in discourse from a focus on women’s empowerment to the recognition of gender equality: “We have moved from seeing women as victims to seeing them as essential to finding the solutions to the world’s problems” (Speaker at the UN Conference on Women, 1995, as quoted in Beneria et al. 2016, p. 1). A number of international events have since focused on advancing gender equality, including the 23rd Special Session of the United Nations (UN) General Assembly (2000), the Millennium Summit (2000) and the Commission on the Status of Women (2006) (UN Women, 2010).

It is within this historical and political context that health and development discourses have evolved from focusing on *Women in Development* to *Gender and Development*. The original *Women in Development* approach emerged in the 1970s, alongside the broader recognition of women's rights facilitated by CEDAW and the World Conferences on Women (Beneria, et al., 2016). The *Women in Development* (WID) approach, rooted in a neoliberal development paradigm, called for the integration of women into development projects and thus into the global economy (ibid). The *Women and Development* (WAD) perspective evolved as a critique of this stance and challenged the orthodox development paradigm espoused by *Women in Development* (ibid). *Gender and Development* (GAD) evolved from both *Women in Development* (WID) and *Women and Development* (WAD), and is seen as a more inclusive approach that placed emphasis on gender relations rather than women's issues in isolation (Beneria, et al., 2016; Van Marle, 2006).

Nowadays, gender remains a challenging issue for health and development. For one, the term gender is a "widely used and often misunderstood term. It is sometimes conflated with sex or used to refer only to women" (Momsen, 2004). Despite the evolution of the discourse of gender and development, the increasing recognition of gender as a determinant of health and of gender equality as a desirable goal, Doyal asserts that there is "a distinct lack of clarity about how such a goal should be defined or about how it might be achieved" (2000, p. 931). Furthermore, gender itself is an inherently political issue that "is missing from, misunderstood in, and only sometimes mainstreamed into global health policies and programmes" (Hawkes & Buse, 2013, p. 1783). These challenges reinforce the need for robust measures of women's achievement and gender equality to help guide health policy and programmes.

#### 1.2.6 Gender and the Sustainable Development Goals

The SDGs establish a clear agenda for international development over the coming 13 years (from 2015-2030), framed in terms of 17 goals and specific targets "...to end poverty, protect the planet and ensure prosperity for all" (United Nations, 2015).

SDG 5 aims to achieve gender equality and empower all women and girls, and has the following specific targets:

- *End all forms of discrimination against all women and girls everywhere*
- *Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation*
- *Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation*
- *Recognise and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate*
- *Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life*
- *Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences*
- *Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws*
- *Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women*
- *Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels [bold font used is my addition] (UNDP, 2018; United Nations, 2015).*

These targets are significantly expanded from the MDGs, which focused solely on *promoting* (versus *achieving*) gender equality and empowering women in education, employment and political representation. Although this means more complexity, the expansion has been welcomed as a way to highlight significant obstacles to gender equality (Chant & McIlwaine, 2016; Willis, 2016). Further, the language contained in the above targets is closely aligned with some of the key goals expressed by the Beijing Platform for Action and the CEDAW. For example, calls to end all forms of discrimination against women, eliminate violence against



women and harmful practices against women and girls, ensure equal opportunities for leadership, and uphold sexual and reproductive rights are based in a human rights language linked to these historical international agreements (UNDP, 2018).

Both the MDGs and SDGs explicitly recognise gender equality and women's empowerment as critical development goals, although this wording is incongruent with the fact that the major – if not sole – focus of SDG 5 is women (and girls), and not men, boys or non-gender binary people.

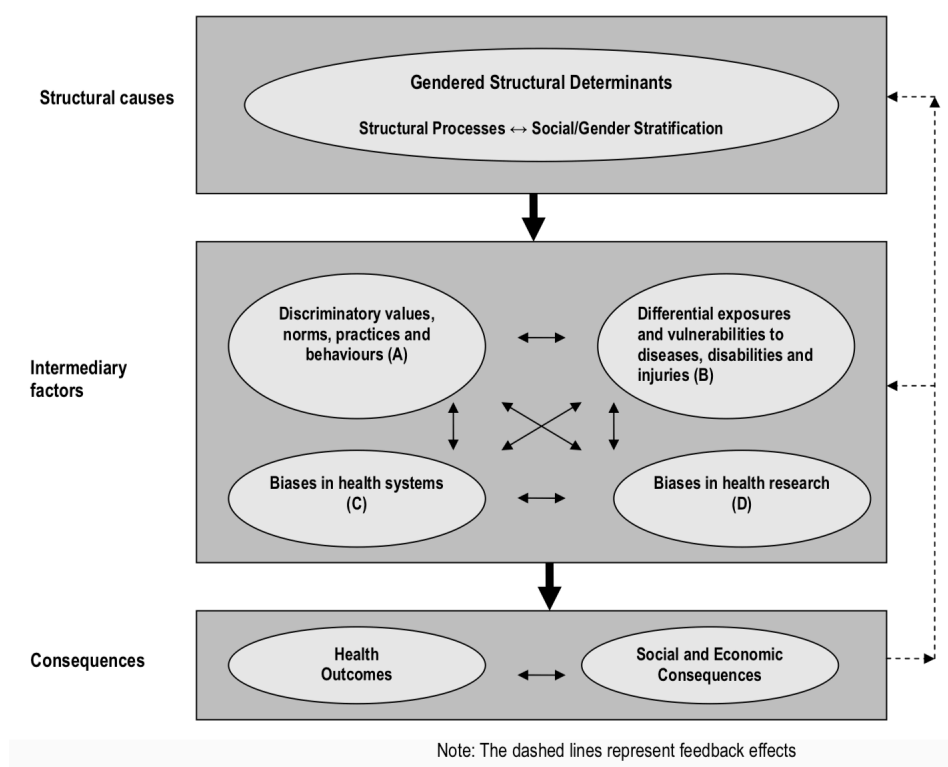
### 1.2.7 Gender as a social determinant of health

The Social Determinants of Health framework encourages the identification and rectification of social inequalities leading to poor health outcomes at a population level. In their 1999 review, Denton and Walters (1999) first recognised that gendered structures of social inequality are influential determinants of health, both directly and through their impact on the behavioural determinants of health. The WHO Commission on the Social Determinants of Health identified gendered norms embedded in social structures as major determinants of health that restrict the rights, opportunities and capabilities of both women and men (Keleher & Franklin, 2008; Sen & Östlin, 2007).

Gender inequality is transformed into health risk through a variety of factors, as described in the Women Gender Equity and Knowledge Network's Gendered Structural Determinants Framework shown in Figure 1 (Sen & Östlin, 2007). Discriminatory values, norms, beliefs and practices, differential exposures and vulnerabilities to disease, disability and injuries, biases in health systems, and biases in health research (ibid.). Gender discrimination at one or all of these levels ultimately impacts health and social outcomes (Anderson & Ray, 2000). On a global scale, the burden of gender inequality drives large-scale excess in mortality and morbidity (ibid.). While both men and women experience certain aspects of inequality, sustained and pervasive structural gender inequalities frequently and severely disadvantage women (Hosseinpoor, et al., 2012; Sen & Östlin, 2007). The impact of gender inequality on *men's* health is increasingly being recognised (Hawkes & Buse, 2013). For the purpose of this thesis, however, gender equality

and inequality will be explored from the perspective of *women's* health and wellbeing.

**Figure 1:** Gendered Structural Determinants Framework as described by the Women Gender Equity and Knowledge Network



Source: Sen & Östin (2007, p. 11)

### 1.2.8 Gender and the socio-ecological model

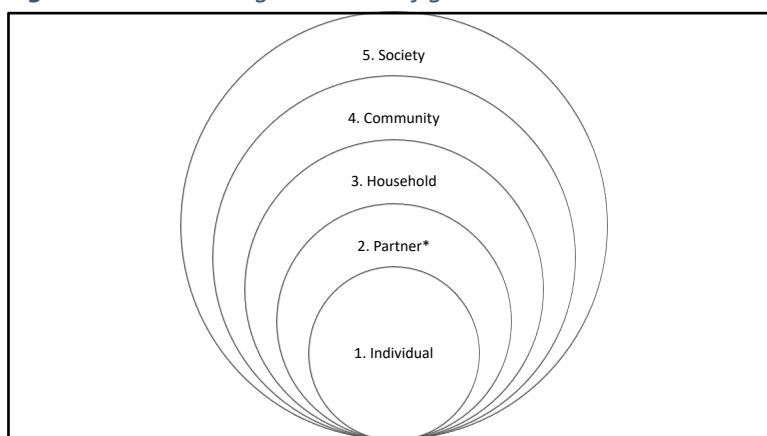
Gender equality is a complex and multi-dimensional phenomenon. It is a relational concept rooted in power dynamics: equality or inequality can only be present when an individual or group is compared to another. From the inside-out, certain achievements and attitudes may not only determine an individual's own personal empowerment, but also how they relate to others and are positioned in society. From the outside-in, gender equality – as an experience, and as a set of measurable, gender-related achievements – is shaped by an individual's interaction with their partner, their household, and broader society. Furthermore, an individual's gender-related achievements may be buoyed by those around them who either directly encourage them or set a certain norm of achievement. Thus, measuring gender equality at an individual level must occur in the context of a broader framework of

understanding of individual achievements, relationships, and broader societal dynamics.

The socio-ecological model places the individual at the centre of concentric spheres of social and environmental influence, from the microsystem (representing an individual's immediate context) through to meso- and macrosystems, which represent the broader societal and political environment in which the individual functions (Bronfenbrenner, 1977; Heise, 1998; Krieger, 1994). Starting with Bronfenbrenner's Ecological Framework for Human Development (Bronfenbrenner, 1977), various models have been adapted to describe the interactions between the individual and broader society (Heise, 1998; Krieger, 1994).

Socio-ecological models recognise that behaviours and achievements do not occur in isolation, and that no one individual factor can completely explain certain achievements. Measuring gender achievements at an individual level must therefore be done with an understanding of the broader system of relationships, power imbalances, and societal dynamics that underpin them. The socio-ecological model has the potential to represent the complex and interacting levels of gender achievements, and the relationship between an individual and her surrounding environment. The ecological model has been adapted in Figure 2, below, to reflect various potential levels of gender-related enquiry.

**Figure 2: Socio-ecological model of gender achievements**



Although the centre of this diagramme is the individual, women's achievements and gender equality are influenced by an individual's immediate and distal environment, and by their relationship with their environment. This ecological model has been adapted from Bronfenbrenner (1977), Kreiger (1994), and Heise (1998).

### 1.3 Narrative, research questions, objectives, and structure of the thesis

To develop a multidimensional, individual-level measure of gender achievement and equality, it is necessary to bring insights into local constructs of gender to bear on the selection, coding and analysis of gender-related indicators available in international household survey datasets. In this thesis, I used and collected data from Peru, a country with substantial gender inequality, to better understand local gender constructs and how these could be represented in a measure of achievement and equality.

Since 2013, I have worked as a medical doctor and volunteer at the organisation DB Peru, which is located in the Amazon basin of Peru. I spent time in both the remote Lower Napo River (LNR) and the port city of Iquitos, where I observed significant gender and health disparities. My initial desire was to explore the relationship between gender and health using large-scale datasets. However, it soon became apparent that there were no 'gold standard' measures for quantifying gender equality at an individual level. So, my academic enquiry evolved to understand first how gender equality was currently measured, and then explore the feasibility of creating an individual-level measure of women's achievement and gender equality using existing household survey data.

My research questions included:

- How are women's achievement and gender equality quantified in international indexes?
- What are the relevant gender constructs operating in the Loreto region of Peru?
- How can these observations be arranged into domains of women's achievement and gender equality?
- Which indicators reflect the gender domains identified by qualitative research and are available at an individual level?
- Do these indicators represent the constructs of women's achievement and gender equality identified through qualitative research?
- What is the optimal method of index construction and how does the index take form?

- What is the pattern of women's achievement and gender equality in Peru?

From these questions, I developed five research objectives to guide the construction of an index of women's achievement and gender equality (WAGE):

Objective 1: To review existing international compound gender equality metrics;

Objective 2: To explore local constructs of gender in Peru's LNR area and Iquitos, and organise these into thematic domains;

Objective 3: To identify gender-related indicators in the 2015 Peru *Encuesta Demográfica y Salud Familiar* (ENDES) and explore their content and construct validity;

Objective 4: To aggregate selected indicators into a multidimensional index of women's achievement and gender equality; and,

Objective 5: To use the index to explore within-country gradients of gender achievement and equality

These objectives align with the chapter structure of the thesis, which is summarised in Table 1, below. Chapter 2 presents a review and critique of existing compound gender indexes, including their conceptual premises and methods. Chapter 3 presents exploratory qualitative research on gender constructs in Loreto, Peru, which is then used to identify potential domains of achievement and equality. Chapter 4 identifies available gender-related indicators from the 2015 Peruvian *Encuesta Demográfica y de Salud Familiar* (the Peruvian version of the Demographic and Health Survey programme) and examines the content and construct validity of these items using cognitive interviews. Chapter 5 evaluates different approaches to indicator aggregation, and attempts to quantify and value both individual achievement in relation to others *and* equality between women and men. Chapter 6 presents the final women's achievement and gender equality index, and describes within-country differences. Chapter 7 offers a discussion of the thesis findings.

### 1.3.1 From gender equality to women's achievements and gender equality

When I first began to think about constructing an index, I started the process very much focused on the concepts of gender and gender equality. As I reviewed literature to see what other gender indexes existed, I realised that many tried to capture 'empowerment' but conceptualised the concept with varying degrees of clarity, that many indexes focused on quantifying equality (women's position vis-à-vis men), and that many captured data from different a number of domains. I therefore planned my qualitative data collection to look at these domains, as well as explore local constructs of gender equality, and which domains matter in terms of gender equality.

After analysing the qualitative data, it became apparent that 'achievements' in different domains (education, employment) were used as a way to demonstrate empowerment and that these concepts were linked to equality. So I repeated my literature search for indexes by including the term 'achievement' and began to think about how to capture both achievement and equality in the new index. This is explained in detail in relevant chapters. The process of conceptualising and designing the index was therefore not linear, but involved an iterative process of reviewing the literature, collecting qualitative data, and refining these insights into a conceptual framework that evolved from focusing on gender to one that captured women's achievements and gender equality.

**Table 1:** Structure of thesis, linking research questions to methods

CHAPTER		Research Question	Goal	Methods
<b>2. Situational Analysis</b> <i>Review of international gender equality metrics</i>		How are women's achievement and gender equality quantified in international metrics?	To review existing international compound women's achievement and gender equality indexes	<ul style="list-style-type: none"> <li>Literature review: grey and academic literature</li> <li>Organisation of findings into the Women's Empowerment Matrix framework</li> </ul>
<b>3. Context &amp; Constructs</b> <i>Exploring local constructs of gender and gender equality in Iquitos and the Lower Napo River</i>		What are the relevant gender constructs operating in the Loreto region of Peru? How can these observations be arranged into domains of gender achievement and equality?	To explore local gender constructs specific to the LNR and Iquitos and organise these into thematic domains to provide a contextual and conceptual basis for an individual-level gender index construction	<ul style="list-style-type: none"> <li>Exploratory qualitative research</li> <li>Thematic analysis of qualitative data</li> <li>Arranging results into gender domains</li> <li>Comparison of domains with those identified in literature using Women's Empowerment Matrix</li> </ul>
<b>4: Evaluation of the Validity of domains and indicators</b> <i>From the conceptual foundation to measurement: moving from gender domains to selecting indicators and evaluating their appropriateness</i>	Content	Which indicators reflect the gender domains identified in Chapter 3 and are available at an individual-level?	To identify gender-related indicators in the 2015 Peru DHS and explore their content and construct validity	<ul style="list-style-type: none"> <li>Qualitative research to guide the identification and selection of gender indicators</li> <li>Matching locally-identified domains with available gender-related indicators from the 2015 Peruvian ENDES</li> </ul>
	Construct	Do these indicators represent the constructs of gender achievement and equality identified in Chapter 3?		
<b>Chapter 5: Index Construction</b> <i>Women's Achievement and Gender Equality Score Construction</i>	Missing data Weighting & aggregation Reliability & consistency	What is the optimal method of index construction and how does the index take form?	To aggregate selected indicators into a multidimensional index of women's achievement and gender equality	Data-driven weighting and aggregation via Exploratory Factor Analysis, and checks via Confirmatory Factor Analysis
<b>Chapter 6: Results</b> <i>The shape of achievement and equality in Peru: results of the WAGE Score</i>		What is the pattern of women's achievement and gender equality in Peru?	To use the index to explore within-country gradients of gender achievement and equality	<ul style="list-style-type: none"> <li>Utilise ENDES data to populate the index</li> <li>Present WAGE by strata of social disadvantage</li> <li>Geospatial heat map</li> </ul>
Chapter 7: Summary and application				





## 1.4 Overview of methods

### 1.4.1 Study context

Peru's three geopolitical regions have a symbolic hierarchy (Ewig, 2010; Motta, 2011; Motta, 2015). The coastal desert represents the most modern region: it is home to the capital, Lima, and the concentration of political and economic power (Ewig, 2010). The sierra region is associated with Andean culture and positioned as the birthplace of grand pre-Hispanic civilizations (Motta, 2011, 2015). The jungle region, despite covering over 60% of Peruvian land mass, does not have an important presence in the national imagination and is neglected or positioned as distant and marginalised (Motta, 2011).

The department of Loreto in the north east of Peru is covered by Amazonian floodplains. My qualitative research, described in Chapters 3 and 4, was set in two locations of Loreto - Iquitos city and the Lower Napo River region - to capture both urban and rural dynamics. Loreto's capital, Iquitos, is one of the world's most remote and inaccessible cities. Situated in the heart of the Amazon jungle, Iquitos is only accessible by air or water. It is a busy port city of around 400,000 inhabitants, many of who are originally from surrounding jungle communities. Iquitos has three main hospitals. Hospital Regional (H.H.R.R.) caters for a largely poor population on social and health benefits (*Seguro Integral de Salud*, or *SIS*). Iquitos Hospital also provides services for those on work-related healthcare benefits (*EsSalud*). Finally, Clinica Ana Stahl is a private hospital. The main industries of Iquitos and Loreto include oil and gas processing, small-scale agriculture, and tourism (Sociedad Peruana de Derecho Ambiental, 2010) (Discover Peru, 2015). Iquitos is distinctly jungle-flavoured: the humid streets are buzzing with local moto-taxi transport, regularly tropical Latino music blares from bars and cafes, and the *Belén* marketplace teems with wild animals, jungle meats, traditional medicine, and local produce.

Around 12 hours upstream by riverboat are the communities of the Lower Napo, a group of 25 villages comprising around 5,000 inhabitants in total. Each community consists of about 200-300 people who live a predominantly agricultural life.

Normally, the community is built around a central football field, a concrete primary school building, and a *maloca* (an open-air meeting hut). Families construct their houses from wood and clear land for small-scale agriculture. Health services are sparse. Each community elects a *promotor* (lay health worker) and a *partera* (lay midwife). There are three health posts in the 25 communities staffed by a health *tecnico* (a university-educated health worker). The main health referral post is around four hours by boat upstream. Although they have Indigenous heritage, many identify as *mestizo ribereños* (mixed-race river people, similar to the mountain equivalent of *campesinos*, or peasant field workers). The river and the jungle are significant influences in people's lives; this is reflected in local cultures, beliefs and practices.

#### 1.4.1.1 Community selection, access and institutional approval

I chose to locate my research in Loreto for personal, logistic, and academic reasons. Personally, as a medical doctor I have always been interested in rural locations and Indigenous health; the Peruvian Amazon provided a dynamic backdrop to develop these interests further. Logistically, around the time of commencing my PhD, I began working as a volunteer medic with the non-governmental organisation (NGO) DB Peru ([www.dbperu.org](http://www.dbperu.org)), which is based in Loreto and partners with local communities to provide access to health education and services. Through my work with the organisation, I came to know and gain access to communities of the LNR. Academically, I was most interested in understanding gender dynamics in countries such as Peru with significant within-country social disparities. Loreto was of particular interest to locate the project given its indicators of relative socio-economic deprivation, reports of high rates of gender violence, and complex social history.

Field research was facilitated through DB Peru in Iquitos and in the LNR. In Iquitos, I was granted permission to undertake research at the *Hospital Regional* by the Medical Director and worked closely with the Oncology Clinic staff whilst there. I was granted permission to work in LNR communities by local health leaders, and spent blocks of time in the river performing a combination of research and clinical medicine (see Section 1.4.1.2 below for further information of my role whilst

there). In Lima, I collaborated with the Universidad Peruana Cayetano Heredia's (UPCH) Centre for Interdisciplinary Studies in Sexuality, AIDS and Society, under the supervision of Carlos Caceres, a public health physician, and Angelica Motta, an anthropologist, both of who co-supervised my academic work whilst in Peru.

In Loreto, I worked with two paid research assistants, San Valentin Matute and Claudia Sicchar Silva, who assisted with data collection and transcription. San Valentin and Claudia are biology graduates of the Universidad Nacional De La Amazonia Peruana in Iquitos, with a keen interest in human health and social development research. They had experience in quantitative (and some qualitative) research, and had previously worked with *Instituto Nacional de Estadística e Informática* to collect household survey data. Although they were from Iquitos and were familiar with local dynamics, they did not know any research participants personally. They contributed to the research, mainly in Iquitos, through assisting with drafting and refining my topic guide, undertaking interviews with my supervision, and doing transcription and data entry. I provided training, supervision, and compensation for them throughout the project.

In the LNR, I lived at the DB Peru lodge, a small open-air bungalow. I worked closely with Circo and Pilar Petite, who acted as my surrogate family and provided cultural, transport and logistics support. The geographic remoteness of the LNR meant that I formed a close connection to certain communities and individuals, which in turn shaped the research experience and process. This will be discussed further in Section 1.4.1.2 below.

I obtained ethical approval from both UCL (Project ID: 5406.001) and UPCH (Codigo SIDISI: 63685). I gained a medical license to practice through the 'volunteer pathway' at the Peruvian Medical Council for the duration of my stay when I practiced clinical medicine.

#### 1.4.1.2 Reflexivity, bias, and my role as a researcher

My field research was influenced by my role as a volunteer medical doctor. In Iquitos, I spent time at the *Hospital Regional* in the oncology unit and outpatients,

where I performed a small amount of clinical gynaecology and collaborated with clinic staff on patient logistics and management. In the LNR, my role as a doctor was to coordinate a pilot women's health programme around cervical cancer prevention using a 'screen and treat' model of care, working closely with local healthcare staff, teachers, and a range of international volunteers.

My role as a researcher was inseparable from my role as a doctor in both study contexts. My connection with healthcare professionals as a doctor facilitated my research activities in both settings and enabled contact with a range of community members who accessed the hospital (Iquitos) or health service (LNR). For example, as a volunteer doctor for DB Peru, I was more readily identifiable and accepted by community members. The blurred distinction between doctor and researcher was most notable in the LNR, where I partook in community activities, participated in medical clinics which provided the opportunity for research interviews, and – during leisure time between field research – was frequently visited by community members who had minor medical complaints. As such, interactions with community members often entailed elements of research/enquiry, education, and medical advice. I was able to use these experiences to observe and learn more about local dynamics.

In general, most participants in the research project knew my position as a medical doctor, and referred to me as 'la doctora.' During each pre-interview information and consent procedure, I made it explicit that individual participation in the research would not influence the nature or quality of medical care they received (see Appendix B). Because the questions contained in my research were oriented towards gender and community social dynamics, most participants seemed to easily distinguish between the research and medical aspects of my work. Nevertheless, the close community interactions I had – especially in the LNR – may have biased the research, either positively (by increasing trust in me as an external researcher) or negatively (because people told me what they thought I should hear). Overall, the position of doctor enabled privileged personal and community insights into local language, culture and gender dynamics.

#### 1.4.2 Mixed-methods research

Through my thesis, I recognised the need to frame local knowledge within a global understanding of the broader field of gender metrics. To value local knowledge and constructs, I used inductive, qualitative research to guide the identification and selection of gender indicators. I was then able to combine this with a quantitative data-driven approach to index construction. This research naturally fits into the mixed-methods research paradigm, which allows for the combination of qualitative and quantitative research in a pragmatic manner to address a certain challenge.

Mixed methodology research is based on the premise that “the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone” (Creswell & Plano Clarke, 2007). It is an approach that focuses on research questions pertaining to ‘real life,’ intentionally integrating multiple methods to frame the investigation within a particular theoretical or philosophical position (Creswell, et al., 2011). Mixed-methods research may improve the depth and breadth of research in the social sciences. Through data triangulation, mixed-methods research may increase study construct validity, as well as provide a more balanced perspective when answering a specific research questions regarding human subjects and their behaviour.

Philosophical positions in mixed-methods research vary between dialectical, pragmatic and transformative viewpoints (Green, 2007; Hall, 2012; Teddie & Tashakkori, 2009). I have tended to align my research with more pragmatic and transformative approaches: on the one hand, a pragmatic approach reflects the project’s aim of exploring practical and real-world solutions to gender equality measurement; on the other hand, measuring gender equality is inherently transformative, providing a means to measure and subsequently realise the empowerment of women and men, regardless of ethnicity and wealth (Hall, 2012; Teddie & Tashakkori, 2009)

### 1.4.3 Multidimensional measures of women's achievements and gender equality

Women's achievements and gender equality cannot be measured directly. It requires a multidimensional assessment that links, in a considered and systematic way, theoretical concepts of equality to selected empirical indicators. (Carmines & Woods, 2003) Multidimensional measures "...refer to situations in which more than one indicator or item is used to represent a theoretical construct" (Carmines & Woods, 2003, p. online). If crafted appropriately, these measures are important tools to summarise complex phenomena such as gender equality in a simple numerical output (Hawken & Munck, 2013; OECD, 2008).

Multidimensional measures of women's achievements and gender equality present an epistemological challenge: by definition, gender is a socially constructed phenomenon that represents generalisable traits or characteristics of femininity or masculinity (and challenges to these identities), yet at the same time there is a uniqueness and complexity to individual lived experiences of gender identity, expression and inequality. Because of the nuance and complexity of the metaphysical concepts of gender and gender equality, some scholars have resisted its definition or measurement (Batliwala, 1993). As a social construct open to evolution and change, gender and the operationalisation of gender equality as a measurable concept is complex and evolving. Despite internationally agreed working definitions, the terms gender and gender equality are "...widely used and often misunderstood... sometimes conflated with sex or used to refer only to women" (Momsen, 2004). Whilst there is a push in the health and development sphere for a more nuanced understanding of gender as a spectrum of identity (Adam, 2017) (Goshal & Knight, 2016), the majority of work is currently limited to a binary notion of gender (Hawkes & Buse, 2013). Whilst recognising the spectrum of gender, this thesis has not addressed the measurement of gender inequality beyond a basic binary notion. Furthermore, due to limitations of available data and conceptual frameworks, my analysis of gender inequality will be limited to heteronormative couples which may introduce bias to the measure and is blind to non-heterosexual or non-gender-binary individuals.

Data constraints are positioned as one of the major limitations to the measurement of gender inequalities worldwide, constraining the choice of indicators and the international coverage of gender metrics (UNDP, 2010) (Equal Measures 2030, 2017). The recent gender data gap initiative launched by the Bill and Melinda Gates Foundation (The Bill and Melinda Gates Foundation, 2016), alongside programmes supported by the UN Foundation (UN Foundation, 2017), attempt to characterise these gaps and to strategize how these data gaps can be filled globally by 2030. Recognised data shortages in the field of gender metrics include: lack of information about the diversity in family composition (for example, information about female-headed households and assumptions of heteronormativity), inadequate quantification of unpaid and domestic labour, meaningful information about asset ownership, data on local contextual factors, and lack of data on men (Chant, 2006; Hawkes & Buse, 2013; Hillenbrand, et al., 2015; Wood, 2018) These constraints will be explored further in Chapters 4 and 7.

#### 1.4.4 Multidimensional index construction

A challenge with the construction of multi-dimensional indexes is that they must simultaneously consider the *process* of construction and the *evaluation* of methodological quality at each step of the process. Whilst the focus of my thesis is the *process* of construction of a measure of women's achievement and gender equality, the majority of literature provides guidance on the *evaluation* of the quality of such measures. From a *process* perspective, approaches to the construction of a multi-dimensional index were identified in teaching materials and international reports, and could be divided into three main stages: conceptualisation; indicator selection (operationalisation); weighting and aggregation (Mueller, 2004; OECD, 2008). From an *evaluation* perspective, Hawken and Munck (2013) analyse international indexes with gender-differentiated data, using a similar approach that considers the conceptual dimensions, how indicators were selected, and how they were combined to reflect the conceptual dimensions. More generally, the Consensus-based Standards for the selection of health Measurement Instruments (COSMIN) taxonomy helps to examine the quality of a measurement instrument in the following areas (Mokkink, et al., 2010):

1. Validity

- a. Content Validity
  - b. Construct Validity
  - c. Criterion validity
- 2. Reliability
  - a. Internal consistency
  - b. Reliability
  - c. Measurement error
- 3. Responsiveness
- 4. Interpretability

I selected two approaches to help guide the construction of a multidimensional measure of women's achievement and gender equality. I used Hawken and Munck's framework because it offered specific guidance for gender-specific measurements (Hawken & Munck, 2013). I also referenced the COSMIN checklist, as it is a widely recognised tool for evaluating the methodological quality of measurement tools (Mokkink, et al., 2010). Table 2 presents a synthesis of the methodological stages of the multidimensional index construction, detailing Hawken and Munck's stages alongside the COSMIN evaluation framework. This will help guide the stages of the construction of a women's achievement and gender equality index from individual-level household survey data.

Although Table 2 presents a complete overview of the stages of multidimensional index construction, some components are not feasible to address within the scope of this thesis. For example, because this is the first attempt at constructing an individual women's achievement and gender equality score using household data in Peru, there is no gold standard against which it can be compared; therefore, examination of aspects of criterion validity are limited.

Bearing these limitations in mind, construction of a multidimensional women's achievement and gender equality index in this thesis will involve the stages of conceptualisation, indicator selection and an assessment of their validity, score construction, and results and application. These stages align with Objectives 2 to 5 detailed in Section 1.3 above.



Conceptualisation involves defining concepts relevant to the measure being developed and specifying how these relate (Mueller, 2004). Emic conceptualisations of gender will be considered through qualitative research in rural Peru, and used to identify measurable gender domains and indicators.

Next, I will focus on indicator selection and validation, a process which involves bridging abstract concepts and empirical measurements (ibid.). Shifting from an overarching concept to raw data on indicators involves selecting indicators to measure conceptual dimensions identified, through indicator selection, design of indicator scales, and assignment of values to indicators (Hawken & Munck, 2013). Although 'operationalising' complex social observations to solid measures is challenging, these indicators should attempt to capture local dynamics and reflect the overarching conceptual framework (Mueller, 2004). This stage provides an opportunity to assess the validity of the selected items through a mix of qualitative and quantitative methods, including cognitive interviewing.

Before constructing the scores, I will consider the impact of missing data, use strategies to impute missing data if necessary, and apply multivariate analysis to explore the overall structure of the indicators themselves (OECD, 2008). Various approaches to indicator aggregation have been applied to gender index construction, ranging from data-driven approaches to normative, consensus or value-driven decisions (UNDP, 2010). I will use factor analysis, a data-driven technique for item weighting and aggregation that has been extensively used in the social sciences, for score construction.

Finally, I will present a descriptive analysis of the score, and a deconstruction of the score over categories of social advantage and disadvantage. Although it will not be fully evaluated, I will be able to in part assess the interpretability, the degree to which one can assign qualitative meaning to quantitative scores (Terweea, et al., 2007).

Prior to undertaking the index construction described above, I performed a review of the literature on international gender indexes, which will be presented in

Chapter 2. Chapters 3 and 4 will present the results of my fieldwork, and Chapters 5 and 6 will return to focus on the index construction itself.

**Table 2:** Methodological stages of a multidimensional index construction, including both the process and evaluation components

Methodological Stages	Hawkin & Munck 2013 Gender Index Evaluation	COSMIN: Quality Evaluation of Measurement Instruments (Mokkink, et al., 2010)			
		Validity	Reliability	Responsiveness	Interpretability
Context and Conceptual Foundation	Identification of conceptual dimensions	<u>Construct validity</u> : the extent to which scores on a particular instrument relate to other measures in a manner that is consistent with theoretically derived hypotheses concerning the concepts that are being measured (Terweea, et al., 2007)	-	-	-
Moving from concept to measurement: selection of indicators	Selection of indicators to measure the conceptual dimensions - Selection of indicators - Design of indicator scales - Assignment of value to indicators	<u>Content Validity</u> : The extent to which the domain of interest is comprehensively sampled by the items in the questionnaire (Terweea, et al., 2007)	<u>Measurement error</u> (OECD, 2013) - Random - Systematic	-	-
Index Construction	Data on indexes: - Rescaling - Weighting - Aggregation	<u>Criterion Validity</u> : the extent to which scores on a particular instrument relate to a gold standard (Terweea, et al., 2007) Concurrent and predictive validity (Brown, 2000)	<u>Reliability</u> : degree to which an instrument is free from random error. (Scientific Advisory Committee of the Medical Outcomes Trust, 2002). <u>Internal consistency</u> : the precision of a scale, based on the homogeneity of the scale's items at one point in time. <u>Reproducibility</u> : the stability of an instrument over time (test-retest) and inter-rater agreement at one point in time.	-	-
Index Results and Application	-	-	-	<u>Responsiveness</u> : the ability of a questionnaire to detect clinically important changes over time (Terweea, et al., 2007)	<u>Interpretability</u> : the degree to which one can assign qualitative meaning to quantitative scores (Terweea, et al., 2007)



## CHAPTER 2: REVIEW OF INTERNATIONAL GENDER INDEXES

*The development of the concept of gender as an analytical tool is one of the greatest gains of women's studies (Charmes & Wieringa, 2003, p. 420)*

### 2.1 Background

The last two decades have seen the emergence of a range of women's empowerment and gender-related indexes (Barden & Klasen, 1999; Charmes & Wieringa, 2003; Kabeer, 2001; Malhotra, et al., 2002). These reflect an increasing awareness of empowerment and gender as development priorities and the need to quantify progress in gender equality internationally. In 1995, the United Nations Development Programme's *Human Development Report* first introduced two measures of gender-related wellbeing, the Gender Development Index (GDI) and Gender Empowerment Measure (GEM) (UNDP, 1995). Although these attracted significant criticism (Dijkstra, 2006), they also triggered an ongoing international dialogue about how best to conceptualise gender in development, and, ultimately, how to measure gender equality. The conversation on gender metrics has continued to explore which aspects of gender equality to capture, how to select and combine indicators to reflect women's achievement and gender equality, how to optimally utilise available data, and how to use these measures to guide policy.

An index or indicator is defined as a "criteria or measure against which changes can be assessed" (Imp-Act, 2005). Gender indicators, also known as 'gender-sensitive' and 'gender-responsive' indicators, refer to quantitative or qualitative measures based on sex-segregated data (CIDA, 1997). Both qualitative and quantitative measures have been used to demonstrate the progress of women and men in areas such as empowerment, policy and societal attitudes. Although there is a recognition that gender inequality harmfully affects both men and women, the majority of indexes presenting gendered measurements on sex-disaggregated data

focus on women's (under)achievements, especially in the areas of reproductive health and violence.

There are currently numerous indexes reflecting various aspects of women's achievement, gender, health and development around the world (Dijkstra & Hanmer, 2000; Hawken & Munck, 2013). These have been critiqued from conceptual and methodological perspectives (Charmes & Wieringa, 2003; Cueva Beteta, 2006; Dijkstra & Hanmer, 2000; Hawken & Munck, 2013; Kabeer, 2001; Schöler, 2006). Despite the rich literature on these aspects of the metrics, there is no consensus on the optimal way to measure women's achievements or gender equality, or, indeed, whether they should even be measured at all (Fúsková, et al., 2017).

To understand current global normative frameworks, and how women's achievements and gender equality have been previously conceptualised and quantified, I systematically collected information on international women's achievement and gender equality metrics. This chapter aims to review existing international compound women's achievement and gender equality indexes to frame my approach to the construction of an individual-level women's achievement and gender equality score. Here, I present a critical evaluation of existing international, compound women's achievement and gender equality indexes, including their conceptual foundations, methodologies, and applications.

## 2.2 Methods

I started my research by conducting a review of academic and grey literature to identify international gender and gender equality indexes. I then refined my search to focus on compound measures of women's achievement and gender equality relevant to developing contexts. I extracted information on key aspects of each index, critiqued each index, and distilled information about the indicators and domains contained in the indexes. This allowed me to form a strong conceptual basis for my own process of index construction.

### 2.2 1 Definitions

My search for international normative frameworks relevant to the construction of an individual-level women's achievement and gender equality score evolved to incorporate the distinct but overlapping concepts of women's achievement and empowerment, and gender equity and equality. These terms were first introduced and defined in Section 1.2.4. In particular, I used the term 'women's achievement' as a proxy for empowerment, following my interpretation of Kabeer (1999). In the current review, I will use the terms achievement and empowerment interchangeably, according to the source literature. Whilst these terms individually have been addressed by numerous approaches resulting in multiple stand-alone indicators, I was interested specifically in how these indicators were combined into multidimensional measurements, and how overarching domains organised the measures.

Here, I define a women's achievement and gender equality index as a composite measurement of aspects of women's achievements or gender equality in various areas of society, summarised into a single numerical value (Anand & Sen, 1995; Klasen, 2004). This definition shaped the search strategy and subsequent critique of the findings.

### 2.2.2 Search strategy

I first performed an online search in November 2013 and updated the search results in September 2017. I searched for international, multidimensional measures of the concepts of women's achievement and empowerment, and gender equity and equality relevant to public health, human rights and international development. I first searched websites of the United Nations Development Programme and United Nations, the World Health Organisation, World Bank, International Labour Organisation, Social Watch, Organisation for Economic Cooperation and Development (OECD), and Inter-Parliamentary Union. Next, I targeted university-specific resources from the Karolinska Institute, Erasmus University, the University of Oxford, and Harvard University.

Finally, I used the academic search engines Scopus, PsycInfo and PubMed. These three major search engines have good coverage of journals in the health and social sciences (Draper, 2017). I used a combination of the following search terms: *women, women's empowerment, women's achievement, AND gender, gender and inequity, gender and equity, gender and inequality, gender and equality, AND metric, measure, score, index or indexes*. I cross-referenced selected articles to ensure I collected a thorough spread of information on available metrics. I included articles that had been published in English since 1990, from any geographic location, from institutional or academic sources, and which detailed or evaluated a particular compound women's achievement and gender equality metric. The methodology had to be publicly available and the index had to be international in nature, in that it was applicable to and utilised in multiple international settings, specifically developing or low-resource areas. I excluded studies that were not in English, did not detail a multidimensional women's achievement or gender equality metric, where the metric was not composite in nature or relevant to public health and development, or had inadequate country coverage.

In summary, gender measures were included if they:

1. Provided a composite or multidimensional index of women's achievement or gender equality;
2. Had publicly available construction methods;



3. Were currently used, in that they were either being piloted or used by a research group or international organisation, or contained up-to-date data
4. Analysed data from low- or middle-income countries (LMICs, as defined by the World Bank)<sup>2</sup>
5. Were international in nature or relevant to multiple international settings, defined by the following criteria:
  - a. The score was developed using formative research from multiple countries;
  - b. The score had a high coverage of countries internationally, defined as over 50 countries; or,
  - c. The score was in the process of being piloted with anticipated international coverage of over 50 countries worldwide

### 2.2.3 Framework for the evaluation of women's achievement and gender equality indexes

As described in Chapter 1, Table 2, my approach to multidimensional index construction included four key stages: conceptualisation; indicator selection and validation; index construction; and, results and application. The first stage, conceptualisation, refers to whether an index identifies conceptual dimensions that are part of an overarching and unifying conceptual framework: "the first desideratum of a measuring instrument is a clear, theoretically justified definition, consisting of a mutually exclusive and jointly exhaustive set of conceptual dimensions that avoid contamination by extraneous concepts" (Hawken & Munck, 2013, p. 3). The next stage, indicator selection and validation, addresses the measurement of these conceptual dimensions. This usually involves selecting indicators, identifying appropriate scales for each indicator, and determining how values are assigned to each indicator (Hawken & Munck, 2013; Mueller, 2004; OECD, 2008). This stage also provides an opportunity to assess the content and construct validity of the indicators selected (Hawken & Munck, 2013; Mokkink, et al., 2010; Mueller, 2004; OECD, 2008). In the third stage, index construction, raw data are rescaled, indicators are normalised or otherwise transformed, weighted,

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<sup>2</sup> In 2015, the World Bank defined Low- and middle-income economies are those in which the GNI per capita was \$12,475 or less (World Bank, 2015)

and aggregated (Hawken & Munck, 2013). This stage also involves the exploration of missing data, considering imputation, and multivariate analysis to explore the overall structure of the indicators (OECD, 2008). The fourth stage includes a presentation of results and discussion of their applications.

I use this framework to organise the findings from my literature review on gender equality indexes. For each index, I therefore report information on the following areas: conceptual framework, methodology (including indicator selection, aggregation and domains of gender achievement or equality), and results.

#### 2.2.4 Domains and indicators

To support the process described above, I used a matrix to report on the conceptual frameworks of each identified index and their women's achievement and gender equality domains and indicators. I adapted the Women's Empowerment Matrix (WEM) first proposed by Charmes and Wieringa (Charmes & Wieringa, 2003) to group domains and indicators of women's achievements and gender equality. This allowed me to bridge the international normative framing of women's achievement and gender equality and qualitative field research on gender constructs as detailed in Chapter 3.

The WEM was created as a way to organise the multiple aspects of women's empowerment. It encourages a holistic overview of gender and empowerment, "...as a field of operation, its dimensions, its interlinkages, as well as its intersectionalities with other fields of power relations, such as those of race/ethnicity and class" (Charmes & Wieringa, 2003; Wieringa, 1994). The WEM, therefore, is a useful tool to map content of women's achievement and gender equality indexes.

The WEM encompasses six domains: Physical, Sociocultural, Religious, Political, and Economic. These domains are not explicitly defined by the authors in their original article (Charmes & Wieringa, 2003). I have therefore interpreted the domains based on a broader human rights framework. I have defined the six domains in the following manner:

1. Physical: Physical integrity (bodily integrity) refers to the right of an individual over their physical body, and the importance of self-determination of an individual of their own body (Miller, 2007). It is recognised that the right to personal integrity is often defined by extension, i.e. in reference to an act that violates it (Hill, 2014).
2. Sociocultural: The International Covenant on Economic, Social, and Cultural Rights (ICESCR) recognises the right to health, education, labour, family, social security, participation in cultural life, and an adequate standard of living (OHCHR, 2017). The term 'sociocultural' (as opposed to 'economic') is often also used to refer to a set of beliefs, customs and practices operating in a particular society. Sociocultural restrictions adversely affect women's empowerment and gender equality (Naz & Chaudhry, 2011).
3. Religious: Numerous international standards have established the importance of freedom of religion or belief, including the Universal Declaration of Human Rights (UDHR) (Art. 18) and the International Covenant on Civil and Political rights (ICCPR) (Art. 18) (OHCHR, 2017). In relation to women's rights, this also includes the protection from discrimination and the recognition of vulnerable groups - such as women or ethnic minorities - in the practice of religion (ibid.).
4. Political: In addition to religion, the ICCPR recognises civil and political rights; both in the protection of infringements against the individual and in the right to participate in civil and political life of society and state (OHCHR, 2017). Women's political empowerment can encompass individual voice, participation in political activities including mobilisation and voting, and formal leadership roles.
5. Legal: Both formal and informal laws, as well as social codes, have the potential to shape gender equality and women's empowerment (Branisa, et al., 2014). Although international human rights law explicitly promotes women's rights and gender equality, national adoption and local enforcement is a more complex and heterogeneous process (UN Women, 2000).
6. Economic: Economic empowerment is "the capacity of women and men to participate in, contribute to, and benefit from growth processes in ways

that recognise the value of their contributions, respect their dignity, and make it possible to negotiate a fairer distribution of the benefits of growth” (Eyben, 2008, p. 9). Economic rights recognised by the ICESCR, and thus used to define the economic domain herein, include employment and labour conditions, unions and labour cooperatives, and social security. (OHCHR, 2017)

I first arranged the indicators and domains in each identified women’s achievement and gender index into the WEM framework. I will subsequently map the domains and indicators identified from qualitative fieldwork (detailed in Chapter 3) onto the same framework. In this way, the WEM framework will act as a bridge between the literature review and my qualitative research findings.

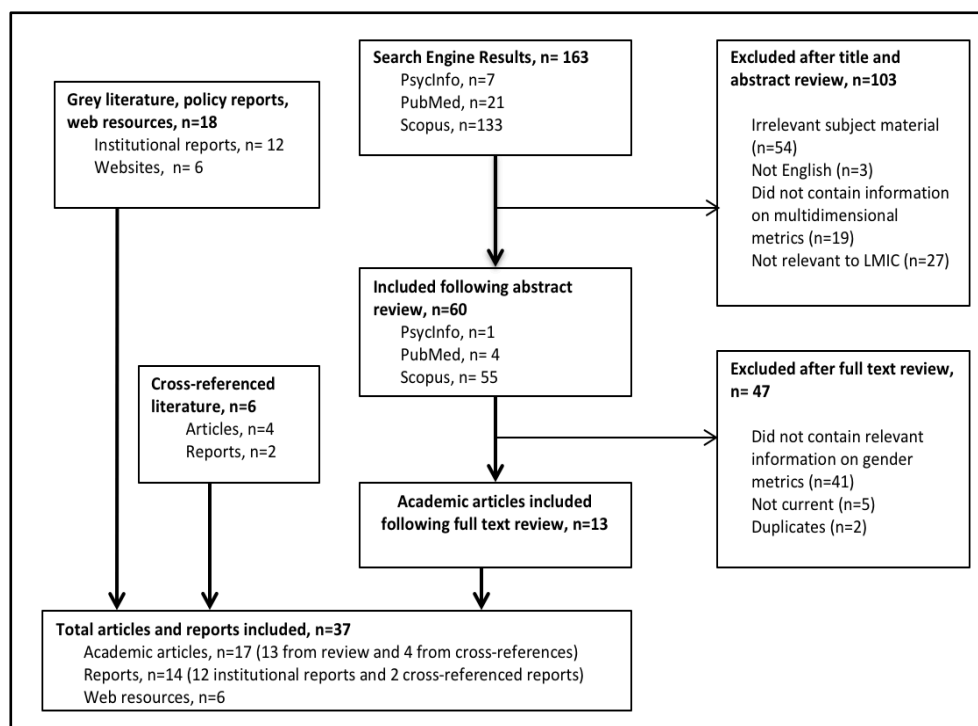
## 2.3 Results and discussion

In this section, I present the results of the literature review in section 2.3.1, followed by a summary of each of the selected indexes in section 2.3.2. I then provide an overall critique of the indexes' conceptual premises, methodologies and impact in section 2.3.3. Finally, I examine the gender domains captured by the selected indexes using the WEM framework introduced in Section 2.2.4 above.

### 2.3.1 Literature review: international gender equality indexes

My initial search retrieved 163 academic references. Following an abstract and full-text review, 13 articles were included in the final review (Figure 3). An additional four articles and 2 reports were identified through cross-referencing journal articles, and a further 18 sources were found through a review of the grey literature. Thirty-seven sources were used in total, which consisted of a combination of 14 institutional reports or reviews, six web sources and 17 academic articles.

**Figure 3:** Flowchart describing the search results for the literature review



I identified a total of 25 international, compound measures of women's achievement and gender equality: the African Gender and Development Index (AGDI), Environment and Gender Index (EGI), Gender Development Index (GDI), Gender Development Measure (GDM), Gender Empowering Enabling Environment (GEEE), Gender Empowerment Measure (GEM), Gender Equitable Men Scale (GEMS), Gender Equity Index (GEI), Gender Gini index (GG), Gender Gap Measure (GGM), Gender Inequality Index (GII), Global Gender Gap Index (GGGI), Millennium Development Goal 3 (MDG 3), Multidimensional Gender-related Development Index (MGDI), Multidimensional Gender Inequalities Index (MGII), Relative Status of Women Index (RSW), Relative Women's Disadvantage Index (RWD), Social Institutions and Gender Index (SIGI), Standardised Index of Gender Equality (SIGE), Sustainable Development Goal 5 (SDG 5), Women's Agency Scale (WAS), Women's Empowerment in Agriculture Index (WEAI), Women's Economic Opportunity Index (WEOI), Women's disadvantage-related gender index (WDG), and the Women's Quality of Life Index (WQL).

Of the identified indexes, the GDI and GEM were the most discussed and critiqued in academic literature. It is important to note that both of these measures are not technically regarded as measures of de facto gender equality, despite having 'gender' in their titles. The GDI is designed to represent the extent of loss to human development at a national level due to gender inequality, whereas the GEM is a reflection of empowerment rather than equality. Scholars such as Permanyer (2013), Klasen (2004), and Cueva Beteta (2006) have written extensively about the uses and misuses of the GDI and GEM. Although the GEM and GDI have been widely criticised since their publication in the 1995 Human Development Report, they instigated an array of commentary and new methodological proposals, from which measures such as the RSW and GII arose. In 2010, the UNDP proposed the GII in its annual Human Development Report to replace the GDI and GEM, overcoming recognised methodological flaws. Because the GDI and GEM are not currently used, having been replaced by the GII, I chose to exclude them from the analysis.

Of the indexes identified, nine were theoretical proposals, put forward as concepts or in response to criticisms of the GDI or GEM, but were not widely utilised (GEEE, GDM, GG, MGDI, MGEI, RWD, SIGE, WGG, WQL). Two of the measures were, in fact,

linked to broader development goals with specific measurable targets, but were not multidimensional, compound indexes (MDG3 and SDG5), and one focused mainly on the environment (EGI).

After exclusion of the above indexes, I included a total of ten indexes that fulfilled the search criteria, presented here in alphabetical order: the African Gender and Development Index (AGDI) which includes both the gender status index (GSI) and African Women's Progress Scoreboard (AWPS) (UNECA, 2011), Social Watch's Gender Equity Index (GEI) (Social Watch, 2010), the Gender Equitable Men Scale (GEMS) (Nanda, 2011), the UNDP Gender Inequality Index (GII) (UNDP, 2010), the Global Gender Gap Index (GGGI) from the World Economic Forum (World Economic Forum, 2016), the Relative Status of Women (RSW) Index (Dijkstra & Hanmer, 2000) (UNDP, 2015), the OECD Social Institutions and Gender Index (SIGI) (OECD Development Centre, 2012), the Survey-based Women's emPOWERment index (SWPER) (Ewerling, et al., 2017), the Women's Empowerment in Agriculture Index (WEAI) (Feed the Future, 2014), and the Women's Economic Opportunities Index (WEOI) published by the Economist Intelligence Unit (Economist Intelligence Unit, 2012).

### 2.3.2 Description of gender indexes

#### 2.3.2.1 African Gender and Development Index (AGDI)

The AGDI aims to measure women's empowerment and gender status issues of particular relevance to African countries. It draws on the frameworks of the Millennium Development Goals, the African Charter on Human and Peoples' Rights, and the Rights of Women in Africa (UNECA, 2011). The AGDI has two components: the Gender Status Index (GSI), which is a quantitative national score, and the African Women's Progress Scoreboard (AWPS), which includes qualitative indicators of policy performance.

The GSI is organised into three 'blocks' (social, economic and political power), five components, 13 sub-components, and 44 indicators (UNECA, 2011). Data for the GSI are derived from national household surveys, census data, and government databases. Each indicator is calculated in the same way for men and women. Each

indicator is also weighted equally within each sub-component, each sub-component is weighted equally in each component, and each component is equally weighted to form the overall GSI score (UNECA, 2011). If an indicator is missing, the other indicators are reweighted to take account of the available data (UNECA, 2011).

#### 2.3.2.2 Gender Equity Index (GEI)

Social Watch's GEI measures the gap between men and women over eleven indicators and three domains: education (literacy rate, primary education enrolment rate, secondary education enrolment rate, tertiary education enrolment rate); economic activity (rate of economic activity, estimated perceived income); political empowerment (proportion of women in technical positions, government positions, parliament, ministerial-level positions) (Social Watch, 2010). The index is calculated by computing the ratio of female to male achievements in each of the eleven indicators and rescaling from 0 to 100. Indicators are weighted according to the population, a sub-index is created by averaging the rescaled values of the indicator per domain, and the overall score is calculated by taking a simple average of the three sub-indexes (Social Watch, 2010). The value of the GEI is presented as an average in the proportions over each area and has a value between 0 and 1, with values closer to 1 representing greater equity. The 2012 Social Watch reported information on 168 countries (Social Watch, 2010).

#### 2.3.2.3 Gender Equitable Men Scale (GEMS)

GEMS is a direct measure of attitudes towards gender equitable norms, which are constructed and reconstructed through familial and social networks across a number of domains including educational roles, employment roles, parental roles, marital roles, and social roles (Pulerwitz & Barker, 2008) (Singh, et al., 2013). Although it was originally developed for young men aged between 18 and 29 from low-income communities, the score has reportedly been adapted to women and girls, and for other age groups and settings (Singh, et al., 2013).



GEMS contains 24 statements about domestic work, caring for children, sexuality and sexual relationships, reproductive health and disease prevention, intimate partner violence, homosexuality and close relationships with other men (Pulerwitz & Barker, 2008). For each statement, all responses are scored on a three-point scale where higher scores reflect more gender-equitable norms (Nanda, 2011). All item responses to each of the questions are then simply summed to an overall GEMS score (Pulerwitz & Barker, 2008).

#### 2.3.2.4 Gender Inequality Index (GII)

The GII was introduced by the *Human Development Report* in 2010 (UNDP, 2010). It was designed to replace the GDI and GEM, overcoming methodological flaws which had previously been heavily critiqued. The GII is designed to provide insight into the extent to which national human development is eroded by gender inequity (UNDP, 2010). It comprises five indicators (adolescent fertility, maternal mortality, educational attainment, political representation, and labour force participation) over three domains of human development (reproductive health, empowerment, and the labour market).

Each indicator is standardised between 0 and 100, weighted equally (UNDP, 2010), and zeros are treated as extreme values (Seth, 2011). The indicators are then aggregated across dimensions using a geometric mean and then across men and women using a harmonic mean, making the GII sensitive to associations between dimensions (Seth, 2011). In parallel, the geometric mean of the arithmetic means for each indicator is calculated. The GII is then one minus the ratio of the harmonic mean to the geometric mean of arithmetic means (Seth, 2011). The GII is presented as values from 0 to 1, with a higher value indicating greater inequity. Currently, data are available for 138 countries from 2010 onwards (de Barbieri, 1993; Seth, 2011).

#### 2.3.2.5 The Global Gender Gap Index (GGGI)

The GGGI was developed by the World Economic Forum and made available from 2006. The GGGI measures ratios between female and male performance over a range of socioeconomic indicators, combined into four domains which represent

gender gaps in human development (World Economic Forum, 2016): economic participation and opportunity, educational attainment, health and survival, and political empowerment.

Data are derived from open source databases, and are first presented as female/male ratios before being truncated to an equality benchmark (close or equal to 1). The weighted average of indicators inform comprise each sub-index, and then sub index scores are combined in an unweighted average for the overall score (World Economic Forum, 2016). The GGGI is available for 144 countries and is presented as a value between 0 and 1, with a value closer to 1 representing greater equity in gender relationships (World Economic Forum, 2016).

#### 2.3.2.6 The Relative Status of Women Index (RSW)

First proposed by Dijkstra and Hanmer in 2000, the RSW evolved as a critique of the GDI (Dijkstra & Hanmer, 2000). Recognising the conceptual and methodological limitations of the GDI, the RSW attempts to capture women's performance relative to men's in three areas: education, life expectancy, and labour. These domains are captured using the same indicators as the GDI, which are presented as a performance ratio at a population level. The RSW attempts to describe gender inequality in human development (Dijkstra & Hanmer, 2000).

The RSW index can be constructed for 136 developing countries data from the UNDP Human Development Report. It is constructed as an unweighted average of the female-to-male ratios of performance in education, life expectancy, and labour. A score of 1 reflects complete equality between men and women, whereas a score less than 1 reflects gender inequality.

#### 2.3.2.7 Social Institutions and Gender Index (SIGI)

The SIGI captures discriminatory attitudes and social institutions in non-OECD countries. Instead of measuring gender differences, it captures discriminatory social institutions such as early marriage, discriminatory inheritance practices, violence against women, son preference, restricted access to public space, and restricted access to land or credit. It is therefore designed to capture process

indicators describing how an environment facilitates or hampers gender equality, rather than gender equality outcomes. It can then be interpreted in conjunction with other outcome-based indexes or indicators (OECD Development Centre, 2014). SIGI contains 14 indicators grouped into 5 domains: discriminatory family code, restricted physical integrity, son bias, restricted resources and entitlements, and restricted civil liberties (ibid.).

Data includes continuous, categorical and binary variables, which are then standardised and aggregated into an indicator which is the average of its available variables. These 14 indicators are aggregated into sub-indexes using polychoric principal component analysis (PCA) over the indicators contained within the sub-index (ibid.). These are then combined into the SIGI by taking an unweighted average of a non-linear function of the sub-indexes. The index “offers a new way of aggregating gender inequality by penalising high inequality in each dimension and allowing only partial compensation between subindexes” (Branisa, et al., 2014, p. 1). The SIGI value lies between 0 and 1, with a value closer to 1 indicating greater gender inequality. Data are sourced from the OECD’s Gender, Institutions and Development Database; country profiles contain qualitative information on 160 countries and the index is available for 108 countries (OECD Development Centre, 2014).

#### 2.3.2.8 Survey-based Women’s Empowerment Index (SWPER)

The SWPER is a new survey-based index of women’s empowerment that is derived from Demographic and Health Survey datasets in Africa. It is designed to quantify aspects of women’s empowerment as captured in the existing modules of the DHS. The selected domains of empowerment included in the SWPER are attitudes towards violence, social independence, and decision making (Ewerling, et al., 2017).

The SWPER includes 15 items related to women’s empowerment that were selected based on their availability and relevance to empowerment (as decided by the authors of the index) (ibid.). Data were derived from national DHS datasets, which contain standardised questions internationally. The items were weighted

and combined using Principal Component Analysis (PCA) (ibid.). The item weighting and retained components (representing three dimensions of empowerment) were similar across the 34 African countries included in the index construction.

#### 2.3.2.9 Women's Empowerment in Agriculture Index (WEAI)

The WEAI is a composite measurement of the control women have over their lives in the household, community and agricultural economy. First launched in 2012 by the Oxford Poverty and Human Development Index, it is a composite measure that combines both empowerment and gender equality in a single score. Women's empowerment is measured over five dimensions: production, resources, income, leadership, and time. The five domains of empowerment (5DE) are calculated for each woman. Subsequently, her gender parity index (GPI) is calculated to represent a woman's achievement relative to the primary male in the household (Feed the Future, 2014).

Data were derived from household and individual questionnaires administered to both male and female respondents in 2011 and 2012 in Bangladesh, Guatemala and Uganda (Alkire, et al., 2013). The indicators were then grouped into five domains of empowerment. The 5DE is computed following the structure of the Adjusted Headcount measure proposed by Alkire and Foster in 2011 (ibid.). Empowerment cut-offs were decided by a process of reflection on the survey responses and qualitative feedback. The GPI is calculated to reflect any inequality in the five domains of empowerment between the female and male primary survey respondent. The 5DE is weighted at 90% and the GPI is weighted at 10% when combined into a single index (ibid.).

#### 2.3.2.10 Women's Economic and Opportunity Index (WEOI)

The WEOI was created by the Economist Intelligence Unit and piloted in 2010. It measures women's economic empowerment and opportunities in labour, finance, education, legal and social, and business (Economist Intelligence Unit, 2012). The index comprises 29 indicators in four domains: labour policy and practice, access to finance, education and training, and women's legal and social status (ibid.).

Data for the quantitative indicators are drawn from national and international statistical sources. Where quantitative or survey data are missing, values are estimated by the Economist Intelligence Unit. Indicator scores are normalised between 0 and 100, and then aggregated across categories to enable a comparison of concepts across countries (ibid). To ensure the relevance of indicators and categories, Principal Components Analysis (PCA) is performed, but it is not clear how or if PCA contributes to the weighting or aggregation of the indicators. The values of the WEOI are presented between 0 and 100, with values closer to 100 representing greater equality in gender relations (ibid).

### 2.3.3 Critique of Identified Indexes

There is no agreement or ‘gold standard’ as to what a gender index should look like and what purpose it should serve. In part, this may be explained by the complexity of the phenomenon of gender equality. It seems as if there is a discrepancy between the data that are available and the depth of *de facto* individual and collective experiences. There are also challenges linked to trade-offs between local relevance and internationally adaptable indicators. These factors affect how indexes are constructed and, ultimately, their impact. In this section, I reflect on the conceptual clarity of selected indexes, critique their methodologies, and discuss how these indexes attempt to measure women’s achievements and gender equality at an individual level.

#### 2.3.3.1 Conceptual clarity

A conceptual framework is an important foundation for the selection of appropriate indicators and integrity of the overall index construction, yet in some indexes the language and frameworks used are inconsistent with the measures themselves. The ten selected indexes used a range of terms including gender, (in)equity, (in)equality, gaps, development, social institutions, empowerment, attitudes, and achievements. These terms need interrogation to ensure the language and face validity of the index reflects the underlying concept. As Hawken and Munck (2013) ask: what do indexes with gender-differentiated data actually

measure? It is important to understand the conceptual and theoretical foundations of gender indexes to ensure there is consistency between what they set out to measure and what they actually measure.

The terms gender equity and gender equality are, at times, used interchangeably. For example, the GII and GEI reference inequity and equity respectively, but measure something more akin to *equality*. The GII is designed to provide insight into the extent to which national human development is eroded by gender inequity. It is based on the framework of the Human Development Index, and sets out to measure differences in achievements between men and women over two dimensions, and women's health outcomes in one additional dimension. The GEI does not make its conceptual framework explicit, but in fact measures relative differences between men and women over three domains. By measuring differences in outcomes, both indexes seem to be measuring *inequality* rather than *inequity*. The concept of *equity* is rooted in the Rawlsian notion of distributive justice (Deutsch, 1975), and does not simply refer to unequal outcomes, but to a more complex process of identifying relative disadvantage and acting in the best interests of all to ensure optimal opportunities. Thus, a measure of equity would possibly entail process, policy, and targeted measures to include the most vulnerable, not merely outcome-based indicators as contained in the above metrics. Van Staveren (2013). argues that a clear distinction should be made between measuring what Sen (1997) refers to as 'culmination outcomes' and processes that lead to the outcomes themselves. By extension, this could be seen as the need to distinguish between *equality* of outcomes and *equity* of processes.

Another challenge for gender metrics is how to conceptualise and measure gender differences. Indexes employ various approaches to this, including gaps, ratios, proportions, or absolute values. For example, the GGII is constructed by converting all indicators to female-to-male ratios (World Economic Forum, 2016). This presents a proportional difference, a ratio, rather than an absolute difference, a gap. A gap reflects relative female and male performance, but may also represent absolute rather than relative differences. Measuring ratios or gaps without a sense of the overall level of achievement in a particular setting risks measuring equality at the expense of being blind to overall levels of achievement. For example, some

indicators may value equal but poor achievement as much as equal but strong achievement. Conversely, focusing on overall levels of achievement fails to incorporate the relative notion of the concept of gender equality. In measures of gender, there needs to be some recognition of this and ideally some mechanism to address these two evolving constructs of absolute *achievement* and relative *equality*. I will discuss this further in subsequent chapters.

The conceptual differences in *achievement* and *equality* become apparent when considering the different handlings of 'women' and 'gender' in the above indexes. Most, although not all, take women as their point of departure to explore subsequent gender phenomena. So, gender equality or similar constructs are reported in relation to women alone, and not in relation to men. The confusion between women and gender is present not only in the metrics above, but is also reflected in leading global health and development discourses: the MDGs and SDGs group women's empowerment and gender equality together, and include metrics relating to women's and girl's achievements alone (United Nations, 2015). Likewise, some of the selected indexes such as the GII merge elements of gender inequality and women's empowerment or achievements without making a conceptual distinction (UNDP, 2016). Therefore, just as the terms equity and equality have been used interchangeably, the terms women and gender have also been confused. Using both women's achievement and gender equality in a single index is not necessarily problematic, because it has the potential to overcome the conceptual challenge of measuring gender differences whilst being sensitive to overall levels of achievement. However, to do this would require a clear conceptual framework that would guide indicator selection, aggregation, and reporting.

Although it has been recognised that concepts of equality (pertaining to gender) and achievement/empowerment (relating to women) have been used interchangeably in health and development literature (Cueva Beteta, 2006), some indexes have managed to draw clear distinctions between gender and women's empowerment through a clear conceptual premise. The WEOI and WEAI, have defined and operationalised empowerment clearly, although there are limitations to the breadth of the definition of empowerment. The WEOI asserts that, through economic empowerment and opportunities, women should be better able to

contribute to formal economies and economic growth (Economist Intelligence Unit, 2012). Whilst the concept of economic opportunity is linked clearly to gender equality in the development of the index itself, its underlying rationale values women's empowerment mostly for the purpose of economic growth. The WEAI takes a different approach to conceptualising empowerment. It links its use of the term empowerment to both a rich body of literature on capabilities, and an analysis of qualitative field interviews (Alkire, et al., 2013). The WEAI recognises that, in defining empowerment, "...it is important to consider the ability to make decisions as well as the material and social resources needed to carry out those decisions... women's empowerment is a multidimensional process that draws from and affects many aspects of life, including family relationships, social standing, physical and emotional health, and economic power..." (ibid., p.6). Furthermore, the development of the WEAI included qualitative research to understand local constructs of empowerment "because the concept of empowerment is so personal, each person has a unique definition of what it means to be empowered based on his or her life experiences, personality, and aspirations" (ibid). This is the first index that incorporates local nuance and qualitative work in its construction.

By reviewing each of the indexes detailed above, the need for conceptual clarity becomes apparent. This presents an opportunity for my thesis to develop a suitable conceptual model that recognises both women's achievement and gender equality. I will critique index methodologies and gender domains below, before moving on to the development of a conceptual framework through Chapters 3, 4 and 5.

### 2.3.3.2 Index methodology

Whilst making conceptual premises explicit is important for gender indexes, translating this into the selection of indicators and constructing the index itself remains a methodological challenge. Regarding indicators of gender equality and empowerment, Cueva Beteta (2006), in her 2006 critique of the GDI and GEM, takes two lines of enquiry. She asks "whose empowerment?" and "what empowerment?" in an attempt to deal with bias in indicator selection and challenges in measuring gender equality. She found that public-facing indicators of social and economic empowerment are dominant, at the expense of other



indicators which may be more reflective of women's private lives, such as informal support networks or domestic time use (ibid). The selection of public-facing indicators such as these reflects a narrow conceptualisation of what 'empowerment' represents. Critics suggest that this may represent systems of conceptualisation of gender and empowerment that reflect a dominance of neoliberalism in the global development discourse (Cueva Beteta, 2006; Permanyer, 2013; van Staveren, 2013). This may also reflect a systematic bias in data collection systems (affecting data availability) which then influence the identification and use of indicators; widely available and complete data are more appealing when constructing an international index. Hence, it seems there is a trade-off between data availability and relevance when it comes to selecting appropriate indicators to capture the complexities of gender equality and women's empowerment or achievement.

Data limitations have been problematic for gender indexes (Permanyer, 2013). Although systems of sex-disaggregated data collection are improving, the quality of data widely available at a global level is still limited. This means that there is a tension between achieving substantial geographic coverage and selecting indicators that cover a depth of locally relevant information (ibid). Ironically, there have been over 300 gender indicators proposed around the world (UNECLAC , 2002), but only a small proportion of these are used in the above indexes. This reflects an imbalance between local information, data collection and reporting systems, and the synthesis of universally relevant indicators. Aside from limitations linked to data availability, the selection of indicators may be shaped by normative or value judgements. The WEAI and GEM use survey data specifically collected for the purpose of the index itself, whereas other gender indexes identified in this review generally selected indicators based on global norms or expert consensus, and did not involve substantial local consultation or qualitative research to understand the balance between the local relevance of selected indicators and their global application. For example, the SWPER selected indicators based on their availability in the DHS, and is thus limited by the available data collected by the survey programme.

The indexes reviewed also had diverse approaches to item weighting and aggregation. Items were either weighted equally, or were weighted differently on the basis of value judgements or data-driven weighting methods. Many indexes used equal weighting, including the AGDI, GEI, GII, and RSW, and assumed that each indicator is of equal importance to the overall sub-domain or domain. Although this approach takes an 'agnostic' standpoint (Decancq & Lugo, 2012; Greco, 2013), its downside is that it does not make value judgements explicit (Greco, 2013). Equal weighting is therefore often considered convenient but "wrong" (Chowdhury & Squire, 2006). The predominance of equal weighting may reflect a reluctance to attribute values of one gender domain over another, and perhaps is a symptom of limited understanding of gender-based dynamics at the individual and societal levels. Value-based weighting, such as used in the GGGI, may give more weight to a specific indicator or group of indicators according to expert opinion or available literature. However, this technique has also been criticised as being non-transparent and failing to capture adequate depth or breadth of information on lived gender experiences (Cueva Beteta, 2006). Data-driven approaches weight indicators via a scheme derived from statistical data reduction techniques, as discussed further in Chapter 5. Although data-driven approaches overcome the limitation of value-based judgements, they are still agnostic in that they group and weight indicators based on the variability contained in the dataset rather than around a particular construct. Principal Component Analysis (PCA) is a common data reduction method that has been used by several indexes including the SIGI, SWPER and WEOI. Qualitative data have not been widely used to determine the weighting of items in the construction of a gender index, but have recently been used to explore broader gender constructs in indexes including the GEMS and WEAI. Approaches to indicator aggregation also vary and are influenced by the weighting schemes used, such as a simple, 'average of averages' approach as employed in the GEI. On the other hand, other scores such as the GII have been criticised for having an overly complex aggregation method. Overall, there is no consensus on the optimal strategy for weighting and aggregation.

A critical limitation of the indexes included in this review is that, for the most part, they all present aggregate, population-based data. Reporting national-level information is simple, provides a clear global overview, and has the ability to track

national progress, but lacks the granularity to detect persisting or evolving gender inequalities at the sub-national level, within sub-populations, or between layers of social disadvantage. By their very nature, compound gender equality indexes based on ratios, proportions, or other forms of aggregate data, are insensitive to *within-county* gender inequality between or within social strata. For example, the national Peruvian SIGI score represents a national average and does not capture differences between ethnicities, geographies and wealth strata that exist at a sub-national level. At present, when reporting aggregate gender data without specifically measuring and detecting local inequalities, we remain blind to potentially large gradients of gender inequality. From a policy perspective, national, aggregate indicators can guide national policy only so far and more nuanced, disaggregated information are needed to direct policy and programmes more accurately.

#### 2.3.3.3 Constructing an index at the individual level

Recent measures of gender attitudes (GEMS), women's achievement (WEAI), and women's empowerment (SWPER) have attempted to use individual data to construct scores by aggregating data horizontally - at the individual level - before vertical aggregation. The GEMS attempts to focus only on individual attitudes (Singh, et al., 2013). The WEAI was developed in a manner that enables each item in the score to contribute to the overall individual- or partner-level score prior to group aggregation. It was constructed using a threshold model of individual empowerment and combined with a gender parity component by assessing a woman's contribution in relation to her partner's. The WEAI methodology makes explicit the framework of individual empowerment that contributes to the structure of the overall score (Alkire, et al., 2013).

Whilst the GEMS and WEAI are instruments that have been specifically developed from qualitative research insights and have specific, validated survey tools, the SWPER has been developed based on existing DHS household survey data in Africa. The SWPER attempts to quantify women's empowerment using individual-level survey data that has been pre-collected and is publicly available through the DHS. Although the use of international survey data means the index is internationally comparable, the domains contained within the SWPER are limited to the

predetermined available data and thus cannot expand to reflect the full scope of women's empowerment in the countries selected (Ewerling, et al., 2017). It is a recognised limitation of the SWPER that "the index is not a comprehensive measure of empowerment and it is not a measure of empowerment as a process, which includes aspiration, voice, choice, and change" (Raj, 2017, p. e849). Although the index is positioned as a tool to monitor SDG5, to achieve gender equality and empower women and girls, the SWPER focuses on the quantification of women's empowerment alone and has not incorporated a measure of gender equality into the score.

So, whilst these three indexes represent an attempt at individual-level measurement, they are still limited in a number of ways, from the conceptual handling of the phenomena of women's achievements and empowerment and gender equality, to the use and limitation of available data. As Raj, in her reflection on the SWPER recognises, these indexes "...can help advance the study of gender empowerment, unless one chooses to argue for perfection over progress" (2017, p. e850). These indexes all represent significant advancements in the field of women's achievement and gender equality measurements despite their limitations, and provide a strong base from which to build upon in the construction of the Women's Achievement and Gender Equality score in this thesis.

#### 2.3.4 Gender Domains

Following a review and critique of existing indexes, I will now use the Women's Empowerment Matrix (WEM) (Charmes & Wieringa, 2003; Wieringa, 1994) as a framework to examine the gender domains captured by the ten selected indexes. As described in Section 2.2.4 above, I have used the WEM, to structure my findings and to understand the content and scope of each index. These domains included the physical, sociocultural, religious, political, legal and economic aspects of women's empowerment, defined in Section 2.2.4 above, and detailed further in Table 3 below.

#### 2.3.4.1 Physical Domain

The physical aspects of gender empowerment contained in the ten selected gender indexes included: the adolescent fertility rate (AFR) and maternal mortality rate (MMR) (GII); other measures of reproductive health and family planning (GII, WEOI, SIGI); harmful cultural practices and violence (GEMS, SIGI, WEOI); child health and HIV (AGDI); life expectancy (RSW, WEOI); and, sex-ratios (GGGI, AGDI) (Table 3).

Whilst measures of AFR, defined as the number of births per 1000 women aged 15-19, and MMR, defined as the number of maternal deaths per 100,000 live births, reflect an essential dimension of women's wellbeing, they represent a narrow aspect of women's health at the expense of other indicators. The use of women's health indicators in gender indexes has been criticised as breaking construct validity by not really reflecting gender equality because there is no equal or suitable comparison group in the male population (Permanyer, 2013). In the GII, women-specific indicators (AFR, MMR) are combined with non-health indicators computed for both men and women, leading to conceptual and methodological issues: "Including the two kinds of indicators simultaneously, the GII becomes an odd mixture that is halfway between both concepts, thus obscuring even more the interpretation of an already complicated index" (ibid, p.7). Furthermore, limiting measures of women's health to reproductive health is, some argue, reductionist (de Barbieri, 1993; David & Russo, 2003; Neyer, et al., 2013).

Health measures that quantify both male and female outcomes are included in the GGGI and AGDI. The sex ratio at birth is the ratio of female to male live births in a certain population, and allows explorations of the phenomenon of "missing women" (Sen, 1992) due to gender bias. The GGGI truncates the equality benchmark at 0.944 to reflect a 'natural' difference between males and females (World Economic Forum, 2016). Differences in healthy life expectancy between men and women is measured by the difference in "the number of years that women and men can expect to live in good health by taking into account the years lost to violence, disease, malnutrition or other relevant factors" and is truncated at 1.06 (ibid, p.5). The AGDI measures differences in under-five stunting, underweight and mortality, reflecting health and nutrition inequalities (UNECA, 2011). Although

HIV/AIDS prevalence and access to antiretroviral therapy is not necessarily specific to the African context, it is included in the AGDI; this perhaps reflects the relatively high burden of disease in some African countries, and the gendered nature of HIV/AIDS. There is much literature on the gendered nature of HIV, which can harmfully impact the health of both women and men at various life stages, and serves to further reinforce socioeconomic inequities (Mutangadura, 2005). Gender, violence and HIV are also intimately linked phenomena (Martin & Curtis, 2004). Thus, these domains of physical integrity are not standalone, but rather reflect the interconnected dynamics of gender inequality.

The WEOI has a slightly more holistic approach to measuring reproductive health, as it includes indicators on modern contraceptive use, calculated as the proportion of women of reproductive age who are using (or whose partner is using) a modern contraceptive method at a given point in time (Economist Intelligence Unit, 2012). The SIGI measures reproductive autonomy, represented by a measure of unmet need for family planning, defined as the proportion of married women aged 15-49 who do not want any more children for the next two years but are not using contraception (OECD Development Centre, 2014). Whilst these measures are still limited to reproductive health and are woman-focused, contraceptive use may reflect broader gender dynamics including decision-making, negotiation, and access to healthcare inclusive of both male and female preferences. Ultimately, however, use of family planning reflects the ability of women to feel empowered to make their own decisions about their bodies, and to affect these decisions in the area of reproductive and sexual health (ibid.).

Violence Against Women is measured in both the SIGI and WEOI, and attitudes against violent behaviours are captured by the SWPER and GEMS. This is a relatively novel area of measurement in gender equality indexes, and reflects harmful gender and power dynamics both at a societal and interpersonal level. The inclusion of VAW measurement also reflects a growing recognition of the negative impact of violence on development and economic growth (OECD Development Centre, 2014; UNIFEM, 2010). There is a clear association between protection from violence and women's empowerment (Alkire, et al., 2013). The WEOI captures women's legal and social status, and identifies and measures the existence of laws protecting

women against violence (Economist Intelligence Unit, 2012). Attitudes to violence are measured in both the SIGI and SWPER as the proportion of women who agree that a husband/partner is justified in beating his wife/partner under certain circumstances. Lifetime prevalence of violence is defined as the percentage of women who have experienced physical and/or sexual violence from an intimate partner at some time in their lives (OECD Development Centre, 2014). The SIGI measures attitudes towards, and the prevalence of, violence, as well as rates of female genital mutilation (FGM). FGM is defined as the proportion of women who have undergone any type of female genital mutilation. However, including a measure on FGM in a global metric will yield unequal results – and possible bias – between countries where this practice is endemic and those where it does not exist. Possibly because of this, the AGDI and SWPER, despite focusing on gender and women's empowerment in Africa, do not include FGM as an indicator.

#### 2.3.4.2 Sociocultural Domain

In the sociocultural domain, education dominates as the main indicator. Indicators of gender equality in the identified indexes in education included:

1. Educational attainment, which is defined in the GII as the proportion of men and women aged 25 years and above who have secondary or higher levels of education (Seth, 2011);
2. Literacy rate, which is included in the AGDI, GEI and RSW, is defined as the proportion of women able to read and write in a selected population;
3. Primary, secondary, and tertiary enrolment rates, measured by the GEI, GGGI, RSW and WEOI;
4. School life expectancy (primary and secondary) which is used as a proxy for retention in education by the WEOI and AGDI.

The AGDI also records information on the existence of government and non-government programmes offering small and medium-sized enterprise support/development training. The existence of such programmes suggests additional adult educational opportunities as well as links to business, and increased labour force participation. The GII uses secondary and higher educational attainment because these significantly affect women's career and leadership

prospects (ibid.). The AGDI focuses on tertiary enrolment in particular, because gender discrimination tends to become more prominent as education becomes more expensive (UNECA, 2011). The AGDI avoids the use of enrolment rates due to the high rates of 'over-aged' enrolment found in many African settings (ibid.). Thus, a range of education indicators are included in most current gender indexes.

While there is a large amount of literature on the importance of education for gender empowerment, this focus may, in part, also be explained by the availability of data on education. Data on education enrolment, especially in primary education, are readily available in most countries (World Bank, 2017). While it may be relatively easy to collect and analyse data on the proportion of girls and boys enrolled in education, enrolment has been criticised for being an oversimplified method for exploring gender equity (Huxley, 2008; Unterhalter, 2006). Enrolment does not capture education quality and participation, which may still differ significantly for boys and girls. Equal enrolment rates may mask systemic discrimination – usually directed against girls – and female dropout rates due to financial pressures to earn money and perceptions that educating girls is not worthwhile (Unterhalter, 2006, 2013). Furthermore, education enrolment indicators have been critiqued for not providing a direct measure of empowerment (Alkire, et al., 2013). Measures of educational differences can be seen as a proxy measure of empowerment, including for bargaining power in the household (Sen 1989) and decision-making (Smith et al 2003).

The construct of social independence is one of the domains identified in the SWPER, and reflected by education, information (frequency of reading a newspaper or magazine), and age of first birth and cohabitation (Ewerling, et al., 2017). This domain emerged from the process of Principal Component Analysis, a data reduction technique which groups variables based on their observed variance, rather than through pre-conceptualised or observed constructs. Although labelled social independence, this domain links formal schooling to other indicators of education, such as access to information. The inverse association between education and fertility has long been recognised in the international development literature, through the intervening variables of age at marriage, desired family size and contraceptive knowledge (Cochrane, 1979). The grouping of variables encompassing education and age of first birth and marriage is consistent with this.



Other measures contained in the sociocultural domain include discriminatory family codes in the SIGI, time use (both leisure and workload) in the WEAI, and cultural attitudes and sexuality in the GEM.

The SIGI includes data on discriminatory family codes, captured by legal age of marriage, early marriage practices, parental authority and inheritance rights, and how these operate to reinforce (or overcome) gender inequality within the household. The rationale for focusing on the household level is that “discriminatory family codes are played out through the unequal division of paid and unpaid work, unequal decision-making capacity, large gaps in age and education of the spouses, male household headship, women’s restricted or limited parental authority, and unequal division of family assets” (OECD Development Centre, 2014, p. 5). For example, early or forced marriage is an issue recognised to have serious implications for the health, wellbeing and development of adolescent girls (UNICEF, 2001). SIGI measures whether women and men have the same legal age at marriage in each country, parental authority in marriage and divorce (whether both men and women have the same legal entitlements to guardianship of children), and the inheritance rights of both widows and daughters. These qualitative, legal indicators are then converted into an ordinal, categorical indicator on a scale of 0 to 1 (Branisa, et al., 2009).

The roles of women and men within the domestic sphere has until recently been neglected by ‘mainstream’ measures of gender which are largely shaped by the dominant neoliberal discourse which emphasises economic development and public dimensions of empowerment (Cueva Beteta, 2006; Kabeer, 2003; Klasen, 2004). There remains a lack of data on intra-household resource allocation, which limits the use of this information in gender indexes. The WEAI has - at least partially - addressed this gap by exploring measures of empowerment and gender parity in time use, capturing “the allocation of time to productive and domestic tasks and satisfaction with the time available for leisure activities” (Alkire, et al., 2013). In the WEAI, time use surveys are used to understand how women spend their time in a 24-hour time period. The time burden of caregiving and domestic labour has long been recognised, and, although time use data can be difficult to obtain, they are important for gender indicators and indexes (Folbre, 2006). The GEM also provides some insight into the domestic sphere, through posing questions which explore

attitudes to domestic chores and daily life, such as “a man should have the final word about decisions in his home.” Additionally, attitudes to gender roles and stereotypes are captured by statements relating to sex and sexuality, such as “it disgusts me when I see a man acting like a woman.”

#### 2.3.4.3 Religious Domain

Few indexes used indicators that related to religion and, overall, this was the least populated category (Table 3). This may reflect the fact that, although some Indigenous religions and cultures include women in spiritual leadership roles (UNESA, 2004), the highest leadership responsibilities in formal religious systems have mostly been restricted to men (Naz & Chaudhry, 2011). Some indexes capture practices closely related to religious beliefs. For example, the SIGI recognises female genital mutilation (FGM) and also touches on restricted civil liberties such as access to public space and public voice. In the African context, the AGDI included the ratio of male to female cultural or traditional rulers as an indicator of gender balance in local leadership.

#### 2.3.4.4 Political Domain

Political empowerment has traditionally been measured by the proportion of seats held by women in national legislatures. This information has been readily available globally since 1997, and is publically available and internationally comparable (Cueva Beteta, 2006). Indexes that quantify the proportion of women in positions of legislature include the GEI (proportion of women in technical positions, government positions, parliament, and ministerial-level positions), the GGGI (ratio of females to males in seats in parliament, at ministerial level, and years with a female head of state), the GII (proportion of seats held by women in national parliament), and the SIGI (share of women in national parliament). National representation of women has been criticised as a biased measure, favoring an elite who have access to education, finances, and networks (Cueva Beteta, 2006) and introducing a class bias (Kabeer, 2003). Furthermore, linking representation to empowerment is difficult, in that there is no certain pathway between representation and accountability (Cueva Beteta, 2006; Goetz, 2003). Despite these criticisms, the political representation of women is still critically important from the

perspective of national decision-making, changing gender stereotypes, and providing role models for women and girls (Cueva Beteta, 2006). Equal representation at this high level may reflect sustained equitable gender power relations in society. Moreover, women in positions of political power may be able to identify and act on areas important for other women (and the whole of the community) in their electorate (Tremblay, 1998). In recognition of the importance of encouraging gender balance in political representation, the SIGI quantifies whether countries have a gender quota system in place or not. Sadly, the majority of countries have not reached internationally agreed targets set by the MDGs, such as a lower threshold of 'parity' of 30%, and only one government in the world actually has over 50% female parliamentarians in national parliament: Rwanda has an established quota system and 64% of its parliamentary representatives are women (World Bank, 2017).

Besides political representation, political participation, mobilisation, and voice can be measured at various levels, as the original WEM matrix reminds us (Wieringa, 1994) (Charmes & Wieringa, 2003). At the individual and community levels, the WEAI measures women's leadership by asking if an individual belongs to an economic or social group, and if this person feels comfortable speaking in public. This question seeks to capture women's individual empowerment by quantifying their ease in speaking up in public, and also recognises the importance of social capital gained by group participation (Alkire, et al., 2013). At the community level, the AGDI plans to collect information on a range of public and civil aspects of gender balance in politics and leadership, including membership and leadership positions in council, trade unions, NGOs, political parties, traditional ruling bodies, and the judicial system (UNECA, 2011). Although, in theory, this would provide more information compared to women in national parliaments alone, this information is time-consuming and costly to collect. At the societal level, the SIGI measures restricted civil liberties by exploring whether women face restrictions on freedom of movement or access to public space. Overall, however, there is scope to further develop measures reflecting non-formal political and community empowerment in this domain.

#### 2.3.4.5 Legal Domain

As described in the WEM, legal and policy environments have considerable influence on women's achievements and gender equality, and are intimately linked to both personal and community experiences of these constructs. Of the ten selected indexes, the SIGI and WEOI focus most explicitly on the legal and social environment. In fact, the purpose of the SIGI is to identify and quantify discriminatory social institutions, defined as "...the formal and informal laws, attitudes and practices that restrict women's and girls' access to rights, justice and empowerment opportunities" (OECD, 2017). Of the indicators used, eleven directly seek to quantify the legal landscape: legal age of marriage; parental authority; inheritance laws; laws on domestic violence, rape and sexual harassment; access to land, non-land and financial assets; access to public space; and, political quotas (ibid.). The SIGI therefore measures an enabling environment for women's rights and gender equality, and does not focus on outcome-based indicators. As such, it is designed to be used in conjunction with other indexes measuring other aspects of gender equality (ibid.).

Like the SIGI, the WEOI details aspects of labour policy and quantifies women's legal and social status. As it focuses on women's economic opportunities and gender equality in these areas, it is heavily focused on labour and women's rights. The indicators utilised to examine labour policy are derived from the ILO Equal Remuneration Convention and ILO Discrimination (Employment and Occupation) Convention, where equal-pay for equal work and non-discrimination in the workforce are enforced. National provisions for maternity and paternity leave (in a composite indicator) as well as legal restrictions on job types for women are also quantified by the WEOI. At a broader societal level, indicators of women's legal and social status include women's citizenship rights, property ownership rights, and national ratification of the CEDAW. This acknowledges the interconnected nature of rights, law, and more specific economic and labour indicators.

#### 2.3.4.6 Economic Domain

Alongside education, economic empowerment activities comprise the majority of gender indicators. All of the ten indexes identified in this review contain some measure of economic empowerment. These can roughly be grouped into four areas: economic activity and labour; income and finances; resources and assets; and the business and legal environment.

Labour force participation, also referred to as economic activity, is measured by the GII, GEI, GGGI, RSW and AGDI. The GEI, GGGI, GII and RSW measure the difference between male and female labour force participation, defined as the labour force divided by the total working-age population aged between 15 and 64 years (OECD, 2017). The GEI quantifies non-vulnerable employment, defined as the *sum of employment status groups of own- account workers and contributing family workers* (UN ESA, 2007). The AGDI not only recognises gender empowerment, but also overall levels of societal economic development by measuring the proportion of women in paid, non-agricultural labour – like the labour force indicator contained in the MDGs – and youth unemployment rates (UNECA, 2011). The WEAI approaches labour force participation from the perspective of individual empowerment, and includes survey measures of reported input into agricultural decisions, as well as perceived autonomy in agricultural production (Feed the Future, 2014). Women are often excluded from the labour market through discrimination, unequal pay or incentives, care and domestic labour, as well as pregnancy and childcare (UNDP, 2016). Therefore, including a measure of economic activity is important to capture gender equality, as equal participation is facilitated by a range of factors from negotiating permission to available opportunities, and to men's willingness to take on domestic duties equitably (ibid.). However, in these indicators, the 'labour force' is defined as those who work for pay or profit at least one hour a week (OECD, 2017). This excludes those who are employed in unpaid work, such as caregiving, and in turn introduces a male bias by ignoring or under-valuing the household and family labour that women often perform.

The GEI, GGGI, WEAI and AGDI all measure income and financial resources. The GEI presents estimated income gaps between women and men, derived from UNESCO data (Social Watch, 2010). The GGGI quantifies both wage equality and the ratio of female to male earned income. Wage equality between women and men for similar work is derived from survey data of the ILO Executive Opinion Survey, and the ratio of female to male estimated income is derived from the UNDP Human Development Programme methodology (World Economic Forum, 2016). Financial empowerment is important both at an individual and societal level: individually, women's control over their own resources is as integral aspect of agency (Alkire, et al., 2013); societally, women's financial and economic empowerment is a pre-requisite for sustainable development and equitable growth (DAC Network on Gender Equality, 2011). However, measuring wage or income equality is only part of the picture; control over how women choose to spend their income is another aspect that reflects not only the capacity to earn money, but the agency to decide on how to spend it. Although it is generally accepted that higher earnings may reflect greater bargaining power at the household level (United Kingdom Department for International Development, 2010), earned income indicators have been criticised from methodological and conceptual perspectives: these components are estimated based on questionable assumptions producing unreliable results (Barden & Klasen, 1999), and, earnings do not account for intra-household distribution of resources (Permanyer, 2013). For example, it is widely recognised that women usually invest a higher proportion than men of their earnings in others, including their families and communities (DAC Network on Gender Equality, 2011). Aside from the net income itself, the WEAI focuses instead on control over own income, using a survey instrument to quantify female and male perception over their own income use. The AGDI once again includes a larger range of region-specific indicators of financial empowerment, including net wages, income from small-scale or informal enterprises, and the share of women under the poverty threshold. These recognise the importance of the informal economic sector in this part of the world, and may, in part, address some of the bias demonstrated by more formal economic indicators employed in other international indexes (Cueva Beteta, 2006).

The SIGI quantifies access to land as well as control over, and entitlement to, economic and natural resources. It rates legal and social access to resources and entitlements on a scale of 0-1. The SIGI's indicators include: "discriminatory laws, which deny women access to land, property and credit; discriminatory customary practices in the allocation or purchase of land, natural resources and other property; negative attitudes towards women's formal work and entrepreneurship; and social norms dictating that women's property ownership or access to credit should be mediated by men" (OECD Development Centre, 2014, p. 10). The WEAI recognises that, although full ownership of assets may not be possible in many societies, holding control over and rights to assets is empowering. The WEAI measures asset ownership as well as perceived agency in the purchase, sale or transfer of assets for both men and women (Alkire, et al., 2013). Likewise, the AGDI plans to collect data on ownership of land, houses, livestock, and credit in African populations (UNECA, 2011).

The dominance of indicators of economic empowerment in gender metrics dates back to their inception, and has been critiqued by many scholars. Although domestic labour and time use are increasingly recognised as key to measures of female and male productivity, these are often omitted from current indexes. Boserup's original argument was that women's work contributes substantially to economies and growth *both* in the domestic and paid workforce (1989). This concern has been echoed by many, including Gaye and colleagues who argued that using labour force participation as a stand-alone measure "ignores the important contributions of women in unpaid work and may perpetuate the undervaluing of these critical activities" (2010, p. 14). Furthermore, women's unpaid labour in the home has an impact on girls' education, health and subsequent employment opportunities (OECD Development Centre, 2014). The AGDI does set out to explore time use in market, non-market, and domestic and care-giving roles, and the WEAI explores time use from the perspective of both work and leisure. These may reflect a first step in shifting the conversation toward recognising domestic labour as a domain unto itself.





Table 3: Gender indicators from ten selected indexes, arranged according to the domains of the Women's Empowerment Matrix

Gender Index	Gender Domains (arranged using the Women's Empowerment Matrix framework)					
	Physical	Sociocultural	Religious	Political	Legal	Economic
<b>AGDI</b>	Health Stunting of under 5 years olds (-2SD) Underweight under 5 year olds (-2SD) Mortality under 5 HIV/AIDS prevalence 15-24year olds Access to anti-retroviral treatment	Education Early childhood enrolment Primary enrolment rate Secondary enrolment rate Tertiary enrolment rate Proportion starting who reach last grade primary Literacy rate 15-24 year olds	Civil Society Number of male/female traditional rulers	Public Sector (ratio of women to men) Members of parliament Cabinet ministers Higher positions in civil service Employment in the security forces Judges of higher courts, lower courts, traditional and religious courts Judges of higher courts Judges of lower courts Judges of traditional and religious courts Civil Society (ratio of women to men) Members of local councils Number of male/female traditional rulers Senior positions in political parties, Trade Unions, Employers' associations Senior positions in Heads or managers of NGOs (ratio of women to men)	-	Time use and employment (female vs male) Wages in agriculture Wages in civil service Wages in formal sector Wages in informal sector Income from informal enterprise Income small agricultural/household enterprise Share of women under the poverty line Time spent in market economic activities Time in non-market economic activities Time spent domestic, care & volunteer activities Women in non-agricultural wage employment Youth unemployment rate Access to resources (female vs male) Ownership of land/farms; Urban plots/houses; Livestock; Access to credit Management Employers; Own-account workers; High civil servants; Members of professional syndicates
<b>GEI</b>		Education (literacy rate, primary education enrolment rate, secondary education enrolment rate, tertiary education enrolment rate)	-	Political empowerment (proportion of women in technical positions, government positions, parliament, ministerial-level positions)	-	Economic activity (rate of economic activity, estimated perceived income)
<b>GEMS</b>	Reproductive health and disease prevention, intimate partner violence	Sexuality and sexual relationships, and homosexuality and close relationships with other men				Domestic work and caring for children
<b>GGGI</b>	Health and survival (over male value) • Sex ratio at birth (female-over-male ratio) • Female healthy life expectancy	Educational attainment (over male value) • Female literacy rate • Female net primary, secondary and tertiary enrolment rates	-	Political empowerment (over male value) • Females seats in parliament • Females at ministerial level • Number of years with a female head of state	-	Economic Participation and Opportunity (over male value) • Female labour force participation • Wage equality for similar work • Female estimated earned income • Female legislators, senior officials, managers • Female professional and technical workers
<b>GII</b>	Adolescent fertility rate Maternal mortality ratio (MMR)	Educational attainment: proportion of men and women >25years and have secondary or higher educational	-	Political representation of women: proportion of seats held in national parliament	-	Labour force participation rate
<b>RSW</b>	Ratio of male to female life expectancy	Ratio of male to female education (literacy, school enrolments)				Ratio of male to female returns to labour (relative labour market participation)

<b>SIGI</b>	<p>VAW</p> <ul style="list-style-type: none"> <li>- Laws on domestic violence, rape and sexual harassment</li> <li>- VAW attitudes</li> <li>- Prevalence VAW</li> <li>- FGM prevalence</li> <li>- Unmet need for family planning</li> <li>- Son Bias: <ul style="list-style-type: none"> <li>- Missing women</li> <li>- Fertility preferences</li> </ul> </li> </ul>	<p>Discriminatory family code: social institutions limiting women's decision-making power and status in the household</p> <ul style="list-style-type: none"> <li>- Early marriage</li> <li>- Parental authority</li> <li>- Inheritance</li> </ul>	<p>Restriction of women's access to, participation and voice in public and social spheres:</p> <ul style="list-style-type: none"> <li>- Access to public space</li> </ul> <p>Restricted Physical Integrity:</p> <ul style="list-style-type: none"> <li>- FGM prevalence</li> </ul>	<p>Restricted civil liberties: restriction of women's access to, participation, and voice in public and social spheres:</p> <ul style="list-style-type: none"> <li>- Access to public space</li> <li>- Political voice</li> </ul>	<p>Discriminatory family code:</p> <ul style="list-style-type: none"> <li>- Legal age of marriage</li> </ul> <p>Restricted Physical Integrity:</p> <ul style="list-style-type: none"> <li>- VAW</li> </ul> <p>Discriminatory family code:</p> <ul style="list-style-type: none"> <li>- Early marriage</li> </ul> <p>Restricted Civil Liberties:</p> <ul style="list-style-type: none"> <li>- Access to public space</li> </ul>	<p>Restricted Resources and Entitlements: reflection of restriction to access to land, control over and entitlement to economic and natural resources</p> <ul style="list-style-type: none"> <li>- Secure access to land</li> <li>- Secure access to non-land assets</li> <li>- Access to financial services</li> </ul>
<b>SWPER</b>	<p>Attitudes towards violence: justification of wife beating in DHS</p>	<p>Social independence</p> <ul style="list-style-type: none"> <li>- Frequency reading newspapers</li> <li>- Education (years)</li> <li>- Education differences with husband</li> <li>- Age difference</li> <li>- Age at first cohabitation</li> <li>- Age at first birth</li> </ul>				<p>Decision making</p> <ul style="list-style-type: none"> <li>- Healthcare</li> <li>- Large household purchases</li> <li>- Visits to family and relatives</li> </ul>
<b>WEAI</b>		<p>Time</p> <ul style="list-style-type: none"> <li>a. Leisure</li> <li>b. Workload</li> </ul>	-	<p>Leadership</p> <ul style="list-style-type: none"> <li>c. Group membership</li> <li>d. Speaking in public</li> </ul>	-	<p>Production: Input in productive decisions; Autonomy in production</p> <p>Resources: Ownership of assets; Purchase, sale or transfer of assets; Access to and decisions on credit</p> <p>Income: Control over income</p>
<b>WEOI</b>	<p>Women's legal and social status</p> <p>Existing laws for VAW</p> <p>Adolescent fertility rate</p> <p>Prevalence of modern contraceptive use</p>	<p>Education and training</p> <p>School life expectancy (primary, secondary, tertiary)</p> <p>Mean years of schooling</p> <p>Adult literacy rate; women</p> <p>Existence of government or non-government programmes offering small and medium-sized enterprise (SME) support/development training</p>	-	-	<p>Labour policy</p> <p>Equal pay for equal work: ILO Equal Remuneration Convention (N 100);</p> <p>Non-discrimination: ILO Discrimination (Employment and Occupation) Convention (N 111)</p> <p>Maternity and paternity leave and provision (a composite indicator that assesses the length of maternity and paternity leave, and maternity benefits coverage)</p> <p>Legal restrictions on job types for Difference between the statutory retirement age</p> <p>Women's legal and social status</p> <p>Citizenship rights</p> <p>Property ownership</p> <p>Ratification of CEDAW</p> <p>Political participation</p>	<p>Labour practice</p> <p>Degree of <i>de facto</i> discrimination against women in the workplace</p> <p>Availability, affordability and quality of childcare services, as well as role of extended family in providing childcare</p> <p>Access to finance</p> <p>Building credit histories</p> <p>Women's access to finance programmes</p> <p>Delivering financial services</p> <p>Private-sector credit as a percentage of Gross Domestic Product</p> <p>General business environment</p> <p>Regulatory quality</p> <p>Procedures, duration, cost and paid-in minimum capital for starting a business</p> <p>Infrastructure risk</p> <p>Access to technology and energy</p>

## 2.5 Summary and conclusion

The emergence of a range of gender indexes reflect an increasing awareness of gender as a development priority and the need to quantify progress in gender equality internationally. The ten indexes I identified introduced a range of terms including gender, (in)equity, (in)equality, gaps, social institutions, achievement and empowerment. The indicators contained within each index were mapped to the WEM, over physical, sociocultural, religious, political, legal and economic domains. This framework will help guide the subsequent qualitative research exploring local gender constructs, detailed in Chapter 3.

Current indexes are not without significant limitations, including a lack of conceptual clarity, biased decision-making around indicator selection, poorly justified normative decisions on item aggregation and score construction, and aggregate information which is blind to within-country inequalities. Conceptual clarity is fundamental to index construction, yet the language and frameworks used were at times inconsistent with the measures themselves. Indicator selection was mainly driven by data availability and a desire for global relevance, and did not necessarily consider more granular local relevance or evolving data collection systems to enhance the availability and generalisability of gender indicators. By virtue of presenting national, aggregate information, gender indexes are blind to within-country gender inequalities; therefore, the policy implications of a national average score is limited. Recent attempts at individual-level index construction partially address this, but are limited by data availability and in the conceptual handling of women's empowerment and gender equality. Despite these limitations, the ten indexes all represent significant advancements in the field of women's achievement and gender equality measurements, and provide a strong base from which to build upon in the construction of the Women's Achievement and Gender Equality score in this thesis.

Going forward, I will seek to consider these critiques in my approach to index construction. I chose to start my index construction for Peru by understanding local gender dynamics from qualitative research. I begin by reporting the results of a thematic analysis of 46 qualitative interviews with individual women and service

providers of the Lower Napo River and Iquitos to identify locally relevant gender domains (Chapter 3). I then consider the indicators from the Encuesta Demografía y Salud de Familiar (ENDES) in light of these results to understand how people's local understandings of gender equality and factors that affect it fit with nationally available indicators. Subsequently, I examine people's understandings of the questions used to elicit these indicators through cognitive interviews (Chapter 4). In Chapter 5, I describe the construction of the index including data transformation, weighting and aggregation. Finally, in Chapter 6, I report results of analyses using the newly constructed index in Peru, and discuss the policy implications of these findings.

# CHAPTER 3: EXPLORING LOCAL CONSTRUCTS OF GENDER AND GENDER EQUALITY IN IQUITOS AND THE LOWER NAPO RIVER

## 3.1 Background

In the Peruvian Amazon, gender inequalities are inextricable from historical events linked to colonisation and political marginalisation, as well as the intersectional identities of ethnicity, class and geography (Shannon, et al., 2017)<sup>‡</sup>. It has been argued that Peruvian society is built on hierarchies of economic, ethnic and gender power dynamics (Cameron & Mauceri, 1997; Ewig, 2010; Motta, 2011; Shannon et al., 2017). Boesten argues that: “Despite, or perhaps as a consequence of, the various intellectual, political, and violent projects that endeavoured to transform Peruvian society into a more prosperous, equal, just society, Peru continues to be highly unequal and fragmented” (2010, p. 9). Current socioeconomic inequalities are reflected by a GINI coefficient of 45.3 and an inequality-adjusted Human Development Index of 0.56 (Shannon, et al., 2017). Historically, Peru was regarded as having the highest levels of economic inequalities in Latin America throughout the political turmoil of the 1960s and 1970s (Gasparini & Lustig, 2011). Despite recent rapid economic growth around the turn of the millennium – based mainly on commodity exports – inequality persists, divided along ethnic and geographic lines (Boesten, 2010; Oxfam, 2015).

Peru’s complex history has led to many gendered divides, particularly in rural areas and Indigenous populations (Ewig, 2010; Espinoza, 2009). The colonisation of Indigenous communities by Spanish conquistadors in the 1530s led to extreme social division between ruling elites and ‘uncivilised’ Indians (Caceres, 2004). This coincided with the imposition of a conservative Roman Catholic ideology that enforced strict regulations over family and home life and reinforced binary male and female roles (ibid.). Peru’s recent transition toward democratisation and

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<sup>‡</sup> I have previously published work that explores gender and health inequities from an intersectional perspective using a structural violence approach. The data to inform the publication were collected during my PhD fieldwork but the analysis and publication of the results are distinct from the work contained in the body of the thesis itself.

economic liberalisation after a prolonged military dictatorship further entrenched gender inequalities. For example, health and education sector reforms concentrated female disadvantage in poor and rural areas (Ewig, 2010). Contemporary gender dynamics replicated in Peru and throughout Latin America reinforce hegemonic masculinity and femininity (Baird, 2016; Gamlin & Hawkes, 2017; Salazar Torres, et al., 2012). This dynamic is reflected in complex politics of the body. On the one hand, Peruvian *machismo* valorises sexual virility, physical and sexual violence as well as homophobia (Caceres, et al., 2002). On the other hand, female sexuality has been politically regulated by restrictive family planning programmes such as President Fujimori's forced surgical contraception programme, which targeted poor and indigenous women, allegedly to control population expansion and improve economic growth (Caceres, 2004) (Coe, 2004).

Despite a challenging political landscape, measures of gender equality have improved in Peru, in the context of globalisation, socioeconomic development, as well as education and health system reforms (Ames, 2013; Ewig, 2010). This is reflected in various national-level indicators such as an increased proportion of women in national parliament, gender parity in primary education, and the women's entry into the labour market (Schmidt, 2013; World Bank, 2017). Although measures reflecting economic and political domains are important, these indicators do not reflect all aspects of or gender equality, and miss gendered behaviours in other spheres, for example at home. Furthermore, although overall indicators reflect national-level progress, gender equality remains elusive for many, particularly poor, ethnic minorities and rural dwellers (Ames, 2013; Babb, 2012; de la Cadena, 1995).

As discussed in Chapter 1, the Peruvian Amazon is located within a tripartite country. The coastal desert, where political and economic power is concentrated, and the sierra region, associated with Andean culture, make up the two other geopolitical regions. In this thesis, although broader Peruvian dynamics are important, it is also necessary to recognise the impact of local dynamics on gender equality and women's achievements. The Peruvian Amazon region has been traditionally neglected from mainstream Peruvian identity and thus is politically and symbolically marginalised (Motta, 2011). The Peruvian Amazon is home to

approximately 50 distinct Indigenous groups who face significant environmental and cultural challenges (IWGIA, 2018). In Loreto there are 26 recognised Indigenous groups (Ministerio de Cultura Peru, 2017). While each of these has an Indigenous language, the main language spoken is *Castellano*. Loreto and its sub-districts has some of the poorest development indicators in the country (Hurbert & Blalock, 2009). It is in this context that gender dynamics are constructed and reconstructed (Shannon, et al., 2017).

In Chapter 2, I discussed the importance of having a conceptual framework to guide the index construction. A conceptual framework consists of a clear, theoretically justified definition, and a set of conceptual dimensions that form the basis of subsequent index construction (Hawken & Munck, 2013). Although some measures established clear conceptual premises, overall I found that the conceptual handling of women's achievement and gender equality was limited. To establish a clear conceptual foundation for the construction of an individual-level women's achievement and gender equality score, understanding local gender dynamics is crucial. The conceptual starting point for my attempt to construct an individual-level gender score with Peruvian data was therefore to understand local gender dynamics through qualitative research.

The aim of this chapter is to explore local gender dynamics specific to Loreto region, in the Peruvian Amazon, and organise these into thematic domains to provide a contextual and conceptual basis for the construction of an individual-level gender index. Emic conceptualisations of women's achievements and gender equality will be considered through inductive qualitative research. I will then map the emerging themes derived from qualitative fieldwork to the gender domains identified through the literature review in Chapter 2. In subsequent chapters I will use qualitative insights into gender dynamics summarised across key gender domains to structure the selection and aggregation of gender indicators for the new index.

## 3.2 Methods

I conducted exploratory qualitative research in Peru's Loreto region between March and July 2015. This consisted of a combination of prolonged community stays, participant observation, 46 semi-structured individual interviews with women from rural and urban locations, and three group discussions with healthcare, education, and social service providers.

### 3.2.1 Rationale for a qualitative approach

Qualitative research is "a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that makes the world visible [...] They turn the world into a series of representations [...] attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them." (Denzin & Lincoln, 2011, p. 3)

I chose to use qualitative research in order to take a grounded, inductive approach to the identification of gender dynamics and the development of locally-informed gender-related measures. Qualitative research allowed me to observe, document, and interpret real-life gender-related phenomena with a view to constructing a gender index guided by local knowledge.

Thematic analysis is a commonly used approach in qualitative research. It is a flexible method to identify, analyse, and report patterns or themes within data (Braun, 2006). Beyond the organisation and description of data, thematic analysis is *interpretive*: it examines qualitative data beyond explicit words or phrases, and identifies emerging ideas and themes (Boyatzis, 1998; Guest, et al., 2012). Guest & MacQueen define applied thematic analysis as: "A rigorous, yet inductive, set of procedures designed to identify and examine themes from textual data in a way that is transparent and credible [...] in the end, its primary concern is with presenting the stories and experiences voiced by study participants as accurately and comprehensively as possible" (Guest, et al., 2012, pp. 15-16). This approach can be used in the interpretation of a range of data including in-depth interviews, focus groups and qualitative field notes. Thematic analysis can be used to build



theoretical models or find solutions to real-world problems, building upwards from local information (ibid.). As such, it may be a useful approach to the measurement and representation of local gender dynamics.

### 3.2.2 Qualitative interviews

I conducted semi-structured individual interviews and group discussions to explore gender roles and dynamics, definitions and meanings of gender and gender equality, and the importance of gender to interviewees' daily lives. Questions were informed by extant literature and the topic guide was developed through discussion with my supervisory team. I drafted the topic guide in May 2014 and further refined it following consultation with experts in London and Peru. The topic guide was structured in four sections: understanding concepts of gender and gender equality, including empowerment, intersectional social factors influencing individual experiences of gender equality, the association between gender and health, and the measurement of gender equality and empowerment in a local context.

I began each interview with a period of informal conversation and an explanation about the type of questions I would be asking and why. I explained the research procedure, the consent process, and reassured women that their responses were anonymous and that they could change their mind about participating at any point during the process. Questions began with "*¿Crees que las mujeres tienen una buena vida en su comunidad? ¿Por qué/por qué no?*" [*Do you think women in your community have a good life?? Why/why not?*] to open up the discussion on daily life and quality of life. Questions then became more focused on aspects of gender empowerment such as political representation: "*Para las mujeres en su comunidad, ¿crees que tener un hombre o mujer alcaldesa es importante? ¿Qué sería diferente si tienes una alcaldesa?*" [*For women in your community, do you think that having a male or female mayor is important? What would be different?*]. Throughout the interview, we followed the natural flow of the conversation rather than rigidly following the topic guide. However, the interview generally progressed along the

order of the domains described above. We also ensured we had sufficient time at the end of each interview for participant feedback.

I first conducted individual interviews with three participants in each location (n=6) to pilot the interviews and refine the language contained in the survey. I did so with the assistance of a Spanish-speaking DB Peru volunteer. Between April and May of 2015, I conducted a further 19 interviews in the LNR, and between May and June 2017, I conducted 20 more in Iquitos.

I performed discussions with naturally forming groups of service providers to complement individual interviews. I put the same questions in a focus group discussion (FGD) format to service providers, although there was scope to explore their role and professional observations in more depth. I interspersed FGDs with service providers between individual interviews in an opportunistic manner depending on when service providers were available to talk.

The final draft of both topic guides was printed in English and Spanish (*Castellano*) and translated by volunteer Spanish-speakers from DB Peru. Appendix A provides an overview of the interview format and topic guide for the individual interviews and FGDs.

I performed the majority of interviews (with some translation support), and supervised two local research assistants who assisted with some interviews in Spanish (*Castellano*), the dominant language in this region. My research assistants were post-graduate biology students from the Universidad Nacional De La Amazonía Peruana (UNAP) Iquitos who had experience in previous health surveys including ENDES. We completed two day-long training sessions, which involved a review of the purpose of the research, qualitative research techniques, and fieldwork protocols, to ensure that they felt comfortable with the semi-structured interview technique. In addition, I supervised and observed their initial interviews so that I could provide feedback on their interview technique and probing style.

I recorded the interviews on a digital tape recorder and iPhone. Both were password protected, transferred onto a computer and stored in a secure password-protected folder.

#### 3.2.2.1 Observations, field notes and secondary data

I recorded field notes in video, audio, photographic, and written forms. Some fieldwork was conducted in settings without electricity and, in this case, notes were handwritten. During fieldwork, initial notes were instructive or descriptive. During periods of rest and reflection, I drafted more structured notes about interactions with individuals and the community context.

I collected a range of different secondary data including local newspaper clippings, advertisements, government campaign materials as well as political and legal documents to provide a broader context in which to locate the research, and to triangulate interview data.

#### 3.2.3 Study Setting

I performed interviews in two locations: the rural Lower Napo River (LNR) and the port city of Iquitos.

In the LNR, community access was facilitated through the organisation, DB Peru, and community health volunteers. I conducted initial qualitative interviews whilst a team of DB Peru volunteers were collecting demographic and health data and undertaking a women's health needs assessment in six communities over a period of two weeks in April 2015. The communities included San Pedro, Puinauhua, Auca Cocha, San Juan de Floresta, Centro Unido and Mangua, which are marked on the map (Figure 4) below. I returned to the same communities by myself to perform further observations and interviews between May and June 2015. Being in the remote jungle was challenging. It took over one day to travel to the LNR, and whilst there, there was no electricity or running water. I spent a long time preparing for the fieldwork, and acquainting myself with the culture and language. Despite my

preparations, I still encountered challenges to access, such as environmental issues including heat, torrential rain, and flooding. During the “high water” season, access to individual houses was only possible via a small dugout canoe. Although I spoke Spanish (*Castellano*), I also relied heavily on local guides to help translate in situations where there were cultural and language barriers.

Figure 4: Map of the Communities of the Lower Napo River



Back in the city of Iquitos, the Hospital Regional was located a fifteen-minute *moto* ride from my accommodation. The Hospital Regional is a large referral hospital which provides a range of outpatient and inpatient services and is the referral point for communities of the LNR. I worked closely with the Director of Communications at the Hospital, and research permission was granted by the Hospital Director. My research assistants and I performed interviews in the outpatient clinic waiting area between the hours of 6am-12pm in order to take advantage of peak patient attendance.

Figure 5: Images of Iquitos (above) and the Lower Napo River (below)

**Hospital Regional**



**Iquitos Port**



**Street vendor and 'moto'**



**A house surrounded by high water**



**Playing football**



**An LNR community meeting**





### 3.2.3.2 Sample and recruitment

In both settings, patients were recruited through the local health service. In Iquitos, I approached women in the outpatient waiting area in a semi-opportunistic, semi-targeted manner. I approached potential participants who were waiting for clinic appointments and were available to speak to interviewers for at least 30 minutes (opportunistic), whilst ensuring that we selected a range of ages and backgrounds (targeted). In the LNR, I worked alongside lay health workers (*promotores*) to enter each community and ask women to speak with me. In the jungle, especially, I ensured that I explained in detail the study justification and ethics, as for many women this was their first time involved in qualitative research.

From the pilot interviews, I estimated that I would require a sample size of at least 30 women and three focus groups to achieve saturation. In both locations, I performed one round of interviews before reflecting on the adequacy of the sample and whether I was reaching data saturation. I was not able to perform a completely iterative approach, because I was in a remote location without telecommunication, so I could not have interviews transcribed or review the transcripts in a timely manner. I did, however, reflect daily on my notes and experiences, so that I could explore emergent themes. From this reflection, I decided to collect an additional round of interview data to a total sample of 45 women.

In total, I conducted 45 individual interviews and three focus groups discussions with the assistance of my two research assistants and one DB Peru volunteer. The sample comprised mainly adult female health service users. The reason I selected a majority-female sample at this point was that I started my field research from the position of 'the woman,' and wanted to explore gender equality from a female perspective<sup>§</sup>. In the LNR, participants were mainly from a subsistence agricultural background. Although participants in the LNR were from Indigenous heritage (many had living memory of specific language and customs) the majority preferred to recognise as *mestizo* (mixed) and spoke Spanish (*Castellano*). In Iquitos,

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<sup>§</sup> This approach expanded to include men, women, and partner/couple interviews during the Cognitive Interviews in my second round of fieldwork which, detailed in Chapter 4

participants had more varied backgrounds, but many were full-time parents or involved in service jobs. Participant ages ranged from 16 to 71 years of age (19-70 years in LNR and 16-53 years in Iquitos). They had a range of educational, professional and life backgrounds. FGD groups included service providers such as medical doctors, teachers and politicians. I conducted the first three group discussions with 19 health *promotores* (lay health workers, or LHWs) from various communities of the LNR. The group included three women and 16 men and was held for two hours during a bi-annual education campaign held by DB Peru. The second group discussion was with eight teachers from Mangua, a small community in the LNR, and included five women and three men. This group discussion occurred during a day of demographic and health survey data collection in the LNR, as described in Section 3.2.3 above. The final group included the board of directors at an Orphanage in Iquitos (one woman and two men).

### 3.2.4 Research Governance

#### 3.2.4.1 Ethics

Ethical approval for the fieldwork was provided by the UCL Human Research and Ethics committee in the UK (Project ID: 5406.001) and the Institutional Review Board of the Universidad Peruana Cayetano Heredia (Codigo SIDISI: 63685). My research was also formally approved by the Board of DB Peru.

In preparation for fieldwork, I anticipated a number of ethical issues that required attention prior to data collection. Historically, there have been many events since colonisation which have reinforced power imbalances in Iquitos and the LNR, such as economic exploitation of the local population, and exploitation of local resources such as oil, gas, and old growth forests. Entering these communities therefore required a certain level of trust. Also, for the majority of women (especially from the LNR), this was their first experience with an interview of this sort. Before each interview, my research team and I would explain the purpose of the research and reassure everyone that they were under no obligation to take part, and that they could change their mind or withdraw consent at any time. In the position of a



medical doctor, I took extra care to explain that individual participation in the survey in no way affected access to or quality of healthcare.

#### 3.2.4.2 Consent

I sought consent in written and verbal forms due to anticipated low literacy rates (see Appendix B – consent forms). As explained above, interview participants were reassured that their participation was completely voluntary. We also discussed the issues of anonymity and privacy, as well as how the data would be handled and stored after collection. Although there were no overt problems encountered when signing the consent documents, some women who were less literate preferred to make an 'x' mark instead of a full signature.

I followed UCL and DB Peru fieldwork ethics and protocols. In the event of information being disclosed that indicated someone's health or wellbeing was at risk, my research team and I would discuss the situation and I would decide if it warranted further action or discussion with my supervisors or with DB Peru staff. For example, we were concerned that, by asking about violence, we may have disclosures of domestic violence. So, we decided that if my research assistants or I were concerned about an individual who reported an episode of violence, we would ascertain if it was a current threat, discuss current options for social support, and provide information about resources available. Although we did speak to many women who had experienced violence, all our interviewees reported past episodes with partners from whom they were separated, so we did not feel they were needing acute support or interventions.

#### 3.2.5 Data Analysis

After the recordings were collected, I used a professional transcription service in Lima to provide confidential Spanish-language transcripts. I performed a total of two rounds of digital recording transcription using this service. From here, I printed and read through each of the transcripts. I printed the transcripts whilst I was in Iquitos and this enabled me to start the analysis whilst in areas where there was no electricity. I then re-read them whilst listening to the recording, so that I could

understand any vocal nuances or fill-in any gaps in the transcription if the recording was of poor quality. I then used pen or pencil to highlight certain areas and make notes as I read through the transcripts. These notes were open and un-structured; they served as a way of processing the information and beginning to draw-out key themes.

On return to London after the fieldwork, I used NVivo 11.0 for Windows and Mac to facilitate the formal analysis. I kept the transcripts in Spanish to keep a flavour of the language and culturally-specific idioms, but then created codes in English. If I found blocks of importance, I would then translate them to English. Spanish to English translation was undertaken for all quotes extracted from the text. These translations were double-checked by a native speaker and then back-translated into Spanish to ensure accuracy.

I used thematic analysis to extract key ideas and issues arising from my interviews, as described in Section 3.2.1. Thematic analysis requires greater researcher involvement around data coding, organisation of coding into relevant themes, and interpretation of these themes (Guest, et al., 2012).

Coding and analysis are naturally influenced by the preconceived research questions, the content of the interviews, and the researcher's own style (Grigulis, 2010). The topic guide was structured around four pre-determined sections, including individual conceptualisation of gender and gender equality, including empowerment, intersectional social factors influencing individual experiences of gender equality, the association between gender and health, and the measurement of gender equality and empowerment . So, initially, my coding followed these overarching areas. Whilst the transcripts and coding roughly followed these sections, I maintained an openness to emerging codes and themes. For example, some women referred to non-heterosexual relationships when discussing gender, and I was able to develop a code for this during the coding process. My coding style was also influenced by the preliminary literature review I had performed. For example, I was aware of the major areas of measurement for gender equality, such as in education and employment.

Following the first round of coding, it soon became apparent that some of the emergent themes were not specifically relevant to answering the research aim of exploring gender dynamics to provide a contextual and conceptual basis for the construction of an individual-level gender index. So, I decided to limit my analysis to gender, gender equality, and empowerment/achievement-related codes.

After arranging my findings into themes, I arranged these into broader domains using the Women's Empowerment Matrix (first introduced in Chapter 2). I then compared my qualitative findings to the results of literature review detailed in Chapter 2. In doing so, the WEM served as a bridge between the thematic analysis (Chapter 3) and the literature review (Chapter 2). This is described further in Section 3.2.6 below.

### 3.2.6 Gender domains: the Women's Achievement and Gender Equality index construction table

I designed a table order to synthesise results emerging from the literature review and my qualitative data so that they could feed into the construction of an index. Over the course of the qualitative analysis, I realised that two distinct conceptualisations were emerging: women's achievements and gender equality. This is described in greater detail in Section 3.5.2. It was because of this distinction that I titled the table I used to arrange my findings "The Women's Achievement and Gender Equality Index Construction Table" (WAGE Table). I introduce the WAGE Table in this chapter and will then use it to summarise the findings of each subsequent chapter thereafter. Its aim is to provide a clear map of the index construction as well as an 'at a glance' summary of each chapter.

Following thematic analysis described above, I first arranged emerging themes into a matrix using the adapted Women's Empowerment Matrix (WEM) (Charmes & Wieringa, 2003) introduced in Chapter 2. I then used the WAGE Table to compare the gender themes identified in the literature review – as arranged via the WEM – with the gender domains derived from the thematic analysis of qualitative interview data. I did this via the creation of a matrix that summarises the results of the previous and current chapters, and, in doing so, facilitates a structured

approach to determining the conceptual framework, identifying relevant domains, and shaping the selection of indicators.

### 3.3 Results and Discussion

#### 3.3.1 Gender Equality

In river communities, some conceptualised gender equality as equality of *opportunity*: “Both men and women are equal before society. They have the same opportunities” (C, female interviewee, LNR). Others saw gender equality as mutual respect between men and women: “Well [in] my personal opinion, gender equality is understood as mutual respect, both the woman and the man, I understand its limitations of course, it is basically mutual respect” (FT, female FGD, LNR). Some also thought that gender equality was about the freedom to express opinions and feelings: “...gender equality could also be seen from a point where all people are equal, only what sets us apart is the difference in gender between the man and woman. But we all think, are all free to express what we feel” (MT, male FGD, LNR).

In Iquitos, there was a discrepancy between ideals of gender equality and interview participant’s lived reality : “I have read and heard on the radio that we all now have equal rights, both men and women, and there is no discrimination, the law says, but, in reality, it is not achieved, because many places discriminate against women, or for older people who no longer have a job, are not able to work, it’s not achieved, the law says so but equality is not met” (L, female interviewee, Iquitos). This was sometimes depicted as sexism: “Men and women are equal and have the right to work also, but there are other men who don’t allow their wife to go and work. We have the same rights.” (N, female interviewee, Iquitos)

However, some city-dwellers discussed the dynamic nature of gender roles and how gender equality could be achieved through transforming both men and women’s roles:

*For me, gender equality is that men and women are able to have the same rights and responsibilities, not only with respect to work but for example, in society the old mothers raised their children, to say ‘you know what my child, you are not able to do such a thing in the house because the wife is in charge’. Then the woman also gets tired, the woman has the right to enjoy*

*her free time. So, what happens? Men normally do certain things, certain occupations, women no. Therefore, for me gender equality is that the man can be a help to his wife, he can work the same way as his wife, to raise (desarollar) the children in an equal way to his wife, (MC, female interviewee, Iquitos).*

While discussions often explored women's (dis)empowerment after being excluded from certain activities by men, some participants discussed the importance of involving both men and women in positive transformation of gender roles:

*Both men and women should be equal. It's not that to be a man is to have more and to be a woman is to have less. Everything has to be equal. (R, female interview, Iquitos).*

*Of course, equality is always important. I think that mothers should raise their children, both male and female, teaching them the same values. Don't tell the girl 'yes you can cry' but the boy 'no', because both are human beings, they both feel. 'You have to cook and you no.' So, that should be eradicated. Why? Because that way men would be more able to compromise, not that I'm saying women are better than men, but if a woman is more prepared than a man, she should have more success (MC, female interviewee, Iquitos)*

The home environment is highly valued in Loretano society. The production and reproduction of gender roles and equality within the home was described through discussions of the division of daily chores and parenting. In some cases, equality in gender roles was seen as an ongoing compromise of roles and responsibilities in the home and in the public sphere:

*Well, in my case, my husband, he works and works [...] I cannot walk much and my husband works and takes care of the house as well, and I have two girls in school, he attends to them. I do all the housework as he works, he takes my daughters to school and collects them, he is in charge of bringing them and picking them up. I take charge of changing, giving them breakfast.*

*We do things equally at home; because you're a woman you don't have to do everything around the house. We must always do this, because there are men that are not like this. There are men who are waited on by women. And on the other hand, it does not have to be that way, everything has to be equal, that it is good that men help in the house, not just to be on the street or working alone, he helps you in the house, together, with the children too. And that is so.* (R, female interviewee, Iquitos)

In summary, the culture and language of equality were present in many interviews. Most interviewees seemed to value partnership and the family unit; being in a partnership was associated with ideals of togetherness and equality. However, at the same time there was a recognition that notions of equality existed as an ideal and not as a reality.

### 3.3.2 Relationships and sexuality

Relationships and family are privileged in Peruvian culture. In Iquitos, sexuality was simultaneously liberal and policed by cultural stereotypes. In the LNR, sexuality was more reserved, though sexual initiation generally occurred at a young age. It was not uncommon to encounter girls as young as 11 who were pregnant. A strong hetero-normative discourse existed\*\*, especially in river communities: males and females were positioned as a working unit, fulfilling separate yet important roles towards the family's survival: "We have equal roles. We help out between the two [genders], because what the woman does with her hands, the man also has to do it with his hands" (L, female interviewee, LNR).

Although family and relationships were held in high regard, relationship dynamics were often perceived as negative or unstable, with many reports of infidelity, maltreatment and separation: "They separate, fight, have troubles [...] In all of these things mainly the women suffer [...] I don't know what is the weakness of men, they like this life, one must be bored, looking for another woman. Yes, so that's my case"

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\*\* Although I observed non-binary gender identities and non-heterosexual sexual orientations – mainly in transgender females – these seemed to be limited to a minority culture in Iquitos not in the LNR, and did not seem to be widely accepted. As such, they were not openly discussed by interviewees.

(T, female, Iquitos). As told from the perspective of female interviewees, unstable relationship dynamics, including domestic and family violence, often affected women and reinforced power inequalities within the relationship: "...because sometimes they have physical abuse from their spouse, especially when their husbands are drunk they lack food for their children, this is a problem too" (G, female, LNR). Domestic violence was a prominent issue when speaking about love and relationships, and also seemed to be facilitated by a culture permissive of hyper-masculinity and *machismo*.

### 3.3.3 Machismo and gender roles

*In my case, yes [I have a good life], but I could not say in general. In my case, yes, thank God I'm still with my husband. But there is a lot of machismo here too.* (N, female interviewee, Iquitos)

*Machismo* – an exaggerated form of masculinity – and *marianismo* – virtuous femininity – emerged as examples of deep-rooted, local gender stereotypes and behaviours in Iquitos. Although *machismo* was explicitly identified in many interviews, *marianismo* was instead implied through discussions around how women were expected to behave in relation to *machista* men: "Men of Loreto are very macho [...] they don't let women explain themselves, study, have their own money, they want the women to depend on them. And they do not share their things, for them the woman is only for washing, cooking and attending the children ... Maybe not all, very few men value women. And I know people from the north... they are more affectionate more loving, more chivalrous... As a woman from Iquitos, I am proud to be here, I just do not like the custom of men here" (O, female interviewee, Iquitos).

As an emic concept, the term *machismo* was mainly used to imply sexism or sexist behaviour, as opposed to a more broadly accepted etic discourse of hyper-masculinity. At a societal level, *machismo* was linked to systemic issues such as unequal access to education, under- or un-employment, and the overall social environment: "The majority are studying yes, because they find work, when they are professionals they change [from being violent], but a person who has not



studied, who has only completed fifth grade of secondary school, has very few possibilities to find a good place of work to progress economically and socially” (D, female interviewee, Iquitos). Male aggression may manifest as an action to compensate for individual perception of social powerlessness:

*Because this city’s culture is machista, men usually denigrate women, women alone are responsible for what is inside the house. They can’t find work, they suffer from domestic abuse, and this does not let the women develop as a person, as an individual, so I think women are not on the same level as men here. (MC, female interviewee, Iquitos)*

Within the family unit, violence may be enacted to compensate for powerlessness in the face of widespread structural violence: “There are some families who have no resources to get ahead, youth who are forced to work and don’t study... For example, if you start work from the third grade, in the future there will be crime, violence, prostitution, drunkenness” (GM, female interviewee, Iquitos). Violence was recognised as a behaviour transmitted across generations: “When a child grows up watching his father abandon his mother, or she is beaten, maltreated, then that creates in a child a psychological disorder. When this person is an adult they will do the same with her husband and their children. So, it is a chain of events” (MC, female interviewee, Iquitos).

Whilst *ribereño* communities were in general perceived as being more peaceful and egalitarian, there was a clear difference in gender roles between men and women. Service providers from the LNR report that many women lacked voice or agency in comparison to their male counterparts:

*What we see here is that women do not express what they feel, what they think... gender equality is not being fulfilled here. In community meetings, where everyone should express their opinion, the women sit to the side. They are separate, silent and the men are the ones who have opinions... (MT, male FGD, LNR).*

This lack of voice was further accentuated when *ribereños* came to Iquitos to seek healthcare:

*Mostly when the people come from the periphery, they come, as a couple, both men and women, and the person who informs us about the patient is a man, not the woman, the one with a cell phone is a man, not a woman, and who has the money is a man, not the woman. Yes, I have seen, on many occasions I have seen. Sometimes one says, sir, I'm not asking you, I want her to tell me. No, it is that she does not know how to respond. That is the answer. It is that she doesn't know how to respond (A, female FGD, Iquitos).*

Although this was interpreted as a power differential in relationships, it may also be explained by lower levels of education and self-confidence in a culture where it is a tradition to let the male partner speak. Many rural dwellers had low levels of health literacy and low self-esteem, and women were further disadvantaged by their indigenous heritage or poverty: “There are girls who come from the river... they feel inhibited by their poverty, by their features too. Sometimes they may feel inferior to a city girl, and this doesn't necessarily have to be” (T, female interviewee, Iquitos). Thus, structural inequities inflicted violence upon the individual through the internalisation of shame or stigma about one's cultural, geographic, or economic position.

### 3.3.4 Power and women's empowerment

Leadership reflects empowerment processes at both an individual and societal level. Individually, many women seem to experience a power disadvantage in their relationship and are not respected and/or unable to fulfil their desire to fulfil public-facing or leadership roles:

*In my community for example, there are women who have the capacity to be a health worker. But, what happens? The husband doesn't want [her to do it], a very clear no. Therefore, we see an imbalance with more male [health workers] than women (P, female FGD, LNR)*

Individual-level dynamics may replicate unequal social trends. At a societal level, the movement of more women into leadership positions reflects greater social permissions: “Yes [a female mayor is important] because they are a representative of where you live, whether woman or man, I believe there should be no sex discrimination” (MC, female interviewee, Iquitos).

Empowerment was often linked to money. To command their own income, women needed to realise their employment potential. Earning money could then bring increased power in a relationship: “I also think that one of the factors is the economy. I’ll tell you a case I’ve seen [...] there are women that work, that generate their own income and they are dominant in the home, for example, and men in this case don’t work. And men have to live submissive to women, it could be a factor, here I have not seen independent women who generate their own income”. (FT, female FGD, Mangua). Sadly, these sentiments were expressed as distant ideals; this participant also believed that women in her community were submissive and did not have financial independence.

Beyond financial independence, participants spoke of the impact of women’s financial empowerment on their children and family: “Because mostly it’s our home’s financial security (*la economía*) that will educate my son” (S, female interviewee, Iquitos). The dual benefit of education for one’s own life and for future generations was seen as part of the intergenerational transference of empowerment and upwards socioeconomic mobility: “Yes [financial empowerment] is important, because how are we to educate our children? ... And most of all for oneself [...] you can do things for yourself” (A, female interviewee LNR).

### 3.3.5 Gender domains

#### 3.3.5.1 Education

Beyond individual utility, equality in educational attainment may reflect within-household gender equitable processes: “Because the husband not only should want

to know, because I also have to know” (Y, female interviewee, LNR). But educational attainment did not necessarily reflect perception of gender equality: “...he has more education than I, but I don’t feel less than him, we are equals.” (R, female interviewee, Iquitos). Education, for some, was conceptualised beyond formal schooling:

*G: Do you think that the difference of education that you two have is really important to you as a person? I mean, is it going to serve as a tool to better your relationship?*

*MC: Yes look, he was raised in a household and your type of home. So, we’re both learning about one another. Customs, experiences, and stuff. For me it is important that he has a different education because I learn to deal with certain situations in a different way, my view has increased overall. I’m not a person who thinks like I’ve been raised, how I learned, but I’m also seeing the point of view of the other person. And this makes me grow in this respect. (MC, female interviewee, Iquitos)*

Despite a recognition of the importance of education and gender roles, attrition of young girls from the education system was noted, mainly in secondary education:

*For a boy and girl [equality of education is important]. My view would be that we all study but there are some children that don’t finish their studies, mainly young girls don’t finish their studies, children complete but sometimes there aren’t the finances to send them to higher education, sometimes girls aged 13, 14 years are already married. (G, female interviewee, LNR)*

### 3.3.5.2 Employment and financial equality

In the predominantly working-class city of Iquitos and in the impoverished areas of the LNR, employment was seen as a matter of survival. In situations of financial and employment insecurity, interviewees described both education and employment as central to their life aspirations, and saw these as instrumental to breaking out of the cycle of poverty: “Yes [equal employment] is important because the two must

work to keep our home” (Y, female interviewee, LNR). Education and employment were seen as means to “become something more” (Ames, 2013): “Of course [equality of employment] is important. Because he and I contribute equally to move forward” (L, female interviewee, Iquitos).

In the LNR, a gendered division of labour roles was the norm. There was a sense that men and women filled very distinct roles, with men performing manual labour and women’s work concentrated on the home:

*Mostly men here are dedicated to agricultural labour, sometimes the woman stays at home, caring for the children, feeding them, caring for the animals, and preparing lunch when the husband comes home, that is the quality of us here because there is not a business for us to go and work in a company. There is agriculture, working the land.* (G, female interviewee, LNR)

In Iquitos, gendered division of labour was also present, although there was more variety in employment opportunities. This division was also reflected in financial earnings:

*For example, a man earns much more than a woman, normally women are classified by gender, males work in certain jobs and earn more than women, men can ascend more than a woman... because women have equal capacity than a man, the only thing different is sex nothing else. And unfortunately society is so, so, at this moment I don’t know how to eradicate this.* (M, female interviewee, Iquitos)

However, despite perceived differences in employment, interviewees expressed a sense of unity with their partner. Although men and women fulfilled distinct labour and social roles, there was a sense that the unit of a male/female partnership was complementary:

*Do I think [difference in employment] important to me? Not so much because I consider myself a person who has received preparation equal to*

*him... I think he, like me, is equally prepared and we are only looking for opportunities, nothing more. (C, female interviewee, Iquitos)*

*In employment [...] as he says all that is his is mine, and what's mine is his, everything is equal. So, if I have no money, he has it, if he doesn't have it, I have it, it's equal. (R, female interviewee, Iquitos)*

### 3.3.5.3 Domestic labour

Women and men were seen as having delineated roles and responsibilities in Loretano society, with women often fulfilling domestic and unpaid roles. Some women were content with their domestic role: "I am a woman, I have to be in my home, for my children. But I live here in my house with my husband, with my daughter, this is what I have. I like being here" (S, female interviewee, Iquitos). Yet most women resented the division of male and female roles:

*Instead, men go out to work[...] Sometimes the women they stay in the home with our children to oversee their studies, to see to cooking, and all that is in the house. Women have more work in the house than men do on the street. (A, female interviewee, Iquitos)*

Some women felt a duty to their family to participate in the labour market:

*The man goes fishing and then meanwhile the woman stays in the house. And sometimes they don't find much work, what is happening now with the government. And we as mothers have to work to support [our families]. (A, female interviewee, LNR)*

However, many recognised the difficulty of the dual roles that women were increasingly navigating, balancing domestic work and paid employment. The burden of responsibility was often not shared by men:

*... in the home, also outside, securing work is difficult, more so if you have children [...] I think that women have a lot more responsibilities than men. Well, the man has to work, but the woman has to do both in the house, and work*

*outside the house [...] It is more complicated for us. (T, female interviewee, Iquitos)*

#### 3.3.5.4 Decision-making

In the nuclear, heteronormative family unit, decision-making was often centred around a partnership, but could also encompass extended family members. For predominantly poor rural households, there was a preoccupation with purchasing essential household goods: items such as soap and salt were seen as luxuries. Other large decisions in rural areas revolved around selling produce and purchasing animals:

**G:** *Who normally decides how to spend household money?*

**N:** *In my case I do because I have to, I have to get everything, I will buy my rice, my oil, my sugar, everything that is lacking. He doesn't think for anything.*

**G:** *And in other homes?*

**N:** *In other homes men, because men order, they buy everything. In other houses, men decide how to spend the money*

**G:** *Is this a problem for women?*

**N:** *Yes because that money is to buy things, sometimes even your soap, you will be needing other things in the house, and the man has spent it all. There are men that put to drink and don't think of their houses, this is a problem for women. (N, female interviewee, LNR)*

In Iquitos, there seemed to be more variety in household expenditures, coming from less absolute poverty and greater opportunities in the city. Although some women spoke of more equitable financial decision-making processes, there was a recognition that often these decisions were male-dominant:

*The two of us, we make a budget. The two of us decide what we need to spend, what is for this, and what is for the other... even when both partners work, at times the man is responsible for spending, sometimes women want to order [but he is] machista, go to work for what you have, he gives you*

*money like this, measured. He gives you measured amounts. But for the beers, for that the money isn't measured. (N, female interviewee, Iquitos)*

*... what is important is that the two reach an agreement, we always analyse together with respect to the household expenses, what is a priority and what is not, because no money comes on a silver platter, one has so much work, makes many sacrifices, and sweats to earn money [...] We must learn to manage money together (MC, female interviewee, Iquitos)*

### 3.3.5.5 Community participation

Another important space for decision-making is at the community level. In rural areas, every community had a small formal leadership structure. Local leadership committees sought community feedback through monthly community meetings. There were female representatives but often the people recognised as leaders (*Agente Municipal and Teniente Gobernador*) were male. There were distinct leadership roles reserved mainly for women, such as the leader of the *Programa Juntos* cash transfers. Occasionally, men fulfilled traditionally female roles, such as *parteras* (lay midwives). Additionally, informal community groups operated: in the LNR, this mainly consisted of labour cooperatives, and in Iquitos the types of community groups were more varied and included sports teams.

I witnessed community meetings in Mangua, San Pedro and Centro Unido. Meetings were a unique combination of formalities and jungle culture: formal language and behaviour contrasted with a relaxed dress code of rainboots and torn tee-shirts. Meeting notes were recorded on scraps of paper, and many meetings were held in the open air. Each had a different style and dynamic, but they were deemed very important to the smooth running of each community. Women who attended often spoke less frequently or did not express their opinion, which resulted in their views being marginalised in public discussions:

*It has been heard, in community meetings, they [the leaders] say "come, husbands." In this case women's decisions appear not to be taken into account. It seems that what prevails is the spouse's decisions, the husbands,*



*all that has been heard in this community. I think for me it is not feasible, decisions must be equal, equitable, coordinated.* (FT, female FGD, LNR)

*And what we see here is that women do not express what they feel, what they think. Only males are those that have the power to decide [...] And I don't know why this is, gender equality is not being fulfilled here, we are meeting men and women, and everyone expresses their opinion, their point of view. But in a meeting, the women are to the side. They are self-contained, silent and the men are the ones who have opinions. But yes there are some women who do have a say, but they are very few, in the whole community only one or two.* (MT, male FGD, LNR)

### 3.3.5.6 Politics and Leadership

*"To be a leader you have to be an example first. It is the ability to have the enthusiasm and attitude, above all, to lead many or more people."* (D, female interviewee, Iquitos)

Participants recognised systemic discrimination against women that impeded leadership opportunities: "There are not many [women politicians]. We don't have many opportunities... Because they say that the woman does not govern well, say the men, this is why they don't vote for women. For example, here in Iquitos, only one time has a female governed as mayor, from here no one more, one time here in the time we have lived here. There are not more women... because there is discrimination happening to women, they don't give us opportunities so that a woman would govern. According to people, they don't have the ability, they don't give women opportunities" (L, female interviewee, Iquitos). Female leaders were seen as potential role models to empower women to speak up and prevent violence: "Realistically, the people are perhaps missing something, a female leader, someone from the community who gets up in front and says, you know what, no more abuse of women, no more, perhaps it takes a decision on behalf of the women. Or perhaps they do not know what rights they also have as women. Apart from other rights they also have, for lack of education" (M, female interviewee, LNR).

Participants also expressed a very strong vision of equality and justice:

*...on the street where I live there must always be a [leadership] directive, and always almost purely men get in there. No I have not seen women... For example, what we have here is a man as a mayor [...] because they say that men can do better than women... A mayor that I know here, well it is the Maynas [district] and all are men.... Well, there you could not argue that it should be a man or woman, but together they have to have the same coordination, this a theme a female governor would touch upon, we have to respect and hear the people. (J, female interviewee, Iquitos)*

Not only did female leaders suggest a trend towards empowerment for many women, but they were also seen as being extremely important for the empowerment of other women:

*It's important because the female leader is out there, she brings information, she goes to meetings, to training. And she calls attention to the women and makes a meeting, and tells others what she has heard, what they told her, and tells us women. That's why it is so important (R, female interviewee, LNR)*

*It would be different perhaps in attention to women, security of women, safety and much respect for the children. We hear her because she is a mother and a wife, who perhaps at some time has passed through problems with her partner. Perhaps we need female directors in this district because we don't have them. (J, female interviewee, Iquitos)*

In their general enthusiasm for supporting greater female leadership, many respondents seemed to reinforce certain gender stereotypes, positioning women as being more family-oriented, more sensitive, and more able to multi-task:

*Well, especially, women have... in general they're more, how can I say, more sensitive to things that happen, they live more, know more about problems*

*with children, in the house [...] Unlike the male who is always for work, work, work (T, female interviewee, Iquitos)*

*I think that a woman is a little more, how might you say, more focused [...] Women sometimes have a little more responsibility than men. (N, female interviewee, Iquitos)*

*Ah well, the woman sees the need of women more than the man [...] The man only works to give us money for food, however the woman no, the woman is the one who stays at home, caring for the children, cooking, teaching... Instead the man goes out all day, you won't see him, just at night... No because the female mayor sees that the woman does more than the man. The man only works for the money to bring into the house. And the woman who stays at home does more work. (C, female interviewee, Iquitos)*

### 3.3.5.7 Health

*I think [there is a connection between gender equality and health]. Because health is almost equal to women's lives, if you don't care for yourself, you are sick. And equal also in women, if you're not good, if you're not in your peaceful house, feeding your children, it can be bad. (C, female interviewee, Iquitos)*

*Sure [there's a connection between gender equality and women's health] because women and men have an equal right to health, they are equal. That is, I think that it is equal, because of gender we are not going to stand aside, we have equal rights to health, to welfare, I think they are connected with that, both men and women, have the equal right to health, to attention, to security. (T, female interviewee, Iquitos)*

Participants linked gender inequality with both harmful impacts on women's self-esteem in addition to physical wellbeing. Repeated inequalities faced by women were internalised in many cases, so that women felt smaller and "less" than they were:

**G:** *Do you think there is a close relationship between gender equality, that is men and women, affecting the health of women?*

**O:** *Oh sure. Psychologically, women they feel short, they feel diminished, submissive, of no value. Then mentally she will also be getting sick, you get a sick soul, depression.*

**G:** *And physically are there problems in women's health that are influenced by inequality?*

**O:** *Well, as I say, they sometimes leave marks on the face, when they hit, like these causes. Bruises, pulling, striking. It's seen on television, how they burn the face with boiled water, they burn the face with muriatic acid, they throw and you are left disfigured in the face (O, female interviewee, Iquitos)*

In decisions relating to healthcare, power imbalances accumulated, and many women from rural areas were severely disadvantaged:

*Mostly when people come from the periphery, they come, as a couple, both men and women, and the person who informs us about the patient is a man, not the woman, the one with a cell phone is a man, not a woman, and who has the money is a man, not the woman. Yes, I have seen, in many occasions I have seen. Sometimes one says, sir, I'm not asking you, I want her to tell me. No, it is that she does not know how to respond. That is the answer. It is that she doesn't know how to respond. (A, female interviewee, Iquitos)*

#### 3.3.5.8 Reproductive health and family planning

I observed four issues impeding access to family planning in Loreto. The first was shortage of staff and resources, which placed overall stress on the system and meant that contraceptives were often out-of-stock in rural areas. The second was that sexual and reproductive health services were perceived as insensitive to population needs and were only available to women aged over 18, making adolescent access to contraception difficult. The third was that family planning services were delivered in the context of a largely Catholic country, where abstinence before marriage, anti-abortion and, at times, anti-contraception sentiments were expressed. The fourth historical barrier to family planning was the

government sterilisation programme of the 1990s which affected some women in the rural communities I visited. One woman was incorrectly told that officials were just “taking her uterus out and cleaning it” before she was sterilised. These factors served to reinforce individual lack of power and health knowledge, and have implications for how women interact with reproductive healthcare services in this region:

*Well here the girls, because they are pregnant early in age, many young women who are pregnant and this, I don't know what this is from lacking, from advice, or parents, because at an early age they are already pregnant [...] I think it is, because for family planning you need to get an appointment. And that should not, I think it should not be. (R, female interviewee, Iquitos)*

For others, reproductive healthcare was more than contraception. It was a means to protect one's self against sexually transmitted diseases:

*There are times, as I say, there are women who do not want to be intimate. And the man says, ah, I go to the street. And when another day comes and he wants to have sex, we do not know what type of infection he brings. Therefore, he tends to infect the woman. (A, female interviewee, Iquitos)*

### 3.3.5.9 Domestic Violence

*“There are so many victims of beatings, abuse, mistreatment, every day in Iquitos” (J, female interviewee, Iquitos)*

Many women shared explicit stories of domestic violence perpetrated against themselves or their neighbours: “Yes I have seen a neighbour who suffers from this. Every time I came her husband beat her like this, [he was] so drunk. She had to run, hiding in my house, she runs every time she sees her husband, to hide, to sleep in another house with the children” (E, female interviewee, Iquitos). Violence was often related to a spouse's alcohol use, perhaps a reflection of internalised self-violence through alcohol, which then facilitated externalised violence towards others: “...because sometimes they have physical abuse from their spouse and, when their husbands are drunk, they lack food for their children. This is a problem

also” (G, female interviewee, LNR). Significant disruption to women and children’s lives was associated with leaving situations of violence, such as lacking money for food or precarious or temporary shelter: “When you depend economically on men, you cannot leave. And that’s why sometimes they endure violence” (R, female interviewee, Iquitos).

Interviewees articulated how family violence affects women not only physically, but also emotionally. Women spoke of the psychological impact of violence, a theme that links aspects of violence, behaviour, and individual self-esteem: “Yes for sure, how many women have been here in the hospital that come with bruises, cuts. So, that’s physical damage, but mostly the damage may be a greater extent, I think psychological, because the psychological damage is not easily erased” (MC, female interviewee, Iquitos). Another outcome of DV, and perhaps a factor in individual vulnerability and resilience, is women’s self-esteem: “What may help is to have respect for women. It is having enough self-esteem, because as a woman who lets you stay and hit her again and again and stays the same, it is that she has nowhere to go. Or because she has no economy, because she depends on the husband... As she lets it continue happening, it will always happen. And that has to do with self-esteem, women must be valued, be respected, and know that it is equal for all, both men and women...” (T, female interviewee, Iquitos). Violence, mainly perpetrated against women, was an accepted, widespread cultural phenomenon in Iquitos, often linked to *machista* behaviour. These societal attitudes reflect systemic violence by reinforcing female inferiority and weakness, as well as perpetuating and normalising domestic violence. These factors subsequently impede women’s personal growth, wellbeing and physical integrity.

In rural LNR, violence was widely known but under-reported and remained largely ‘hidden.’ *Ribereño* communities consist of around 200 people: many residents therefore seemed to know who perpetrated violence and who suffered from it, but were reticent to discuss it openly. Furthermore, individual lack of voice and disempowerment were seen as barriers to addressing violence in the community:

*They don’t report [domestic violence]. Here’s the governor, police, municipal agent. But no, they do not report their husbands, for fear and*

*dread. They live in their houses, the man goes to look for food and fish and she is quiet. Perhaps by lack of knowledge or ignorance, perhaps if she is struck she does not denounce those things, in all that they are”* (FT, female interviewee, LNR).

### 3.3.6 Summary of gender domains and comparison with literature review results (WAGE Table)

I identified a total of twelve domains through thematic analysis of qualitative interviews and group discussions. These roughly align with the six broader domains of the WEM as detailed in Chapter 2. Table 4 describes the gender indicators identified in the literature review and arranged into the domains of the WEM, and gender domains identified by qualitative research. Congruent findings include:

- a. The WEM domain of *physical empowerment* encompasses the areas of health, family planning, and violence identified in qualitative research;
- b. The *sociocultural empowerment* domain of the WEM aligns with the education domain identified through interviews;
- c. The *political empowerment* WEM domain encapsulated both community participation and leadership domains identified in fieldwork; and,
- d. The WEM domain of *economic empowerment* aligned with the themes of labour and employment, financial empowerment, and property, assets and ownership identified in the qualitative data

Although religious and legal empowerment were identified by the WEM as key domains, the qualitative data did not feature content related to these. This may be due to lack of variety or diversity of experiences on the part of interviewees. In general, all participants identified as Catholic, and both women and men enjoyed the freedom of practicing this religion. However, women’s leadership within the institution of the church was limited; this type of discrimination was normalised in the local context. Most interviewees had limited access to the legal system, and, aside from a few key informants, most did not have a strong grasp on the legal frameworks that affect gender equality. This reflects a challenge when exploring

the relationships between bigger-picture areas such as the law and gender empowerment, where it is difficult to measure at the individual level if the target group of participants has limited contact with or knowledge of that area.

Although women did speak of property rights, it seemed as if, in both locations, women and men experienced relative equality of property ownership. In rural locations, such as the LNR, property was provided by a central community committee and joint ownership was given to couples who were able to construct their home. In the city, I was informed that joint property ownership was facilitated by national policy that stipulates both partners should be names on the legal documents. This area of enquiry, including the legal framework for property rights and asset ownership, will be discussed in more depth in Chapter 4.

The domains of domestic labour and decision-making, which were identified as important local constructs for gender achievement and equality in the local context did not feature in the WEM. This may be because the WEM domains mainly captured public aspects of gender and women's empowerment, and did not explicitly recognise these more private domains. Domestic labour has generally been neglected by 'mainstream' measures of gender (Cueva Beteta, 2006; Folbre, 2006; Kabeer, 2003; Klasen, 2004). Through the qualitative interviews, I found that gender stereotypes affected the construction of domestic roles. Gender roles were reinforced and replicated by patterns of decision-making. For example, women were seen to be in touch with domestic needs (emphasising their role inside the house) and healthcare (emphasising their role as caregivers and parents), while men were seen as the head of the household and held positions of employment or fulfilled public-facing roles. As opposed to outcome-based indicators, decision-making at a household level is a complex process that involves negotiation, communication and participation, and requires different approaches to measurement (Folbre, 2006; Klasen, 2004).



Table 4: WAGE Table, comparison of qualitative results and WEM domains

QUALITATIVE RESULTS		WEM MATRIX
Domains	Details	Domains
Health	Healthcare decisions reflect empowerment and communication around healthcare	Physical
Family planning	Access to healthcare affected by gender (transport, services etc.) Health outcomes reflect access and decisions; thus, gendered inequalities Access to family planning reflect systemic and structural barriers to access and use Knowledge & education important to empower women and men Use of modern family planning a result of access and knowledge; thus, fertility preferences reflected a process of empowerment Communication in partnerships to explore power dynamics and decision-making	
VAW	Prevalence of VAW – personal experiences of violence and/or community prevalence Attitudes to VAW – although many disagreed with violence against women, there remained a permissive cultural context allowing high rates of violence to continue Programmes and prevention of VAW were mainly focused in urban areas	
Education	Literacy – necessary for basic activities such as trading and purchasing Primary education – generally available and accessible for both genders Secondary education – important foundation for skilled employment. Drop-out rates high especially in young women (partners, pregnancy, economics, geography) Tertiary education – highly respected education level, mainly achieved by those in the city. Offers more job security, but unemployment rates still high despite this	Sociocultural
Community participation	Community groups important for individual and collective empowerment, formal and informal support networks Community meetings reflected participation and decision making at community level	Political
Leadership and political representation^	Voice and power expressed during meetings and in groups reflect gender/power Local political structure gender unequal, men>women in formal positions of power. More female leaders desired due to perceived positive gender traits. Leadership opportunities for women limited, but were conceptualised as being important for personal empowerment and to 'bring up' and empower others Perception of equality in leadership	
Labour and employment	Strong working mentality: work linked to personal identity/pride Gendered labour roles define career intentions and earning potential. Even in the jungle where agricultural roles were dominant, women and men fulfilled different roles and these were valued differently Work opportunities and employment differ between men and women, often due to burden of family and domestic responsibilities Wage discrepancies between men and women reflected by different earnings for same work, or gender difference of labour roles Financial empowerment came from secure employment; financial security was highly valued	Economic
Financial empowerment	Financial empowerment closely linked to safe employment, seen as a strong life goal. Women often seen as being in more precarious financial positions by over-reliance on male partner, dropping out of school or paid workforce for children, or through lower earning capacity Control over own earnings was linked to whether the individual was given their own wage or relied on others. This was also linked to decision-making, and power within a partnership Access to credit or bank accounts was very limited in both populations, with many not having or using a bank account in the region. Especially in those from rural areas.	
Property, assets and ownership	House ownership was valued, consistent with the value placed on financial and job security and the value of the family unit. Mobile phones used by both men and women in the city, but in rural areas where resources were shorter, usually only one phone was owned per household and this was normally controlled by the male Access to credit or bank accounts was very limited in both populations, with many not having or using a bank account in the region. Especially in those from rural areas.	Legal
Family sphere and domestic labour	Importance of family unit to Peruvian culture. The family unit was where gender roles were replicated, and where cultural stereotypes of machismo, pater familias and marianismo were identified. Burden of domestic labour fell on women/girls, women's roles were linked to domestic duties. This restricted earning potential and financial/job security Domestic labour undervalued economically and socially	Not covered by WEM
Decision-making	Head of household reflected intra-household power structure and gender norms, and in turn influenced the decision process Decision-making processes between couples was a reflection of individual power and agency, as well as the capacity to negotiate (give and take) Communication between partners and process of decision-making was important Decisions in context of resource shortage - locally relevant decisions and purchases, including limited food, limited capacity to travel, limited range of items to purchase Healthcare decision making was often linked to women's role as caregiver	
Age and power	Marriage < 20 years, pregnancy <18 years, initiation of sexual activity <15 years seen to represent immaturity, power imbalances against women, restriction of life opportunity Age differentials (old men, younger women) common; may reflect power imbalance	

### 3.4 Discussion of qualitative findings

#### 3.4.1 Summary of findings

This Chapter has explored local constructs of gender equality through qualitative research. Key areas emerging from interviews include local constructs of gender equality, relationships and sexuality, *machismo*, and empowerment. Locally salient concepts of gender equality were expressed in terms of equal opportunities, human rights, and transformation of male and female roles. Relationships and sexuality were explained by contextualising the research setting both historically (through the landscape of political and social violence) and geographically (through exploring links between the natural environment and gender roles). The term *machismo* was a term used locally to identify sexist or extreme male behaviours, whereas women's roles were perceived as more multi-tasking and focused on others' wellbeing.

The twelve gender domains identified from thematic analysis included education, employment, financial empowerment, family sphere and domestic labour, decision-making, health, family planning, leadership, community participation, age differences and maturity, property ownership, and gender violence. These aligned with the four of the six domains of the WEM as detailed in Chapter 2, but there was a lack of agreement between the private spheres of domestic and family responsibilities identified in the qualitative interviews, and the more public domains of empowerment expressed in the literature. This disconnect between the private and the public has been recognised and critiqued at length previously, but will be further explored in the context of what this means in relation to the development of a women's achievement and gender equality index in subsequent chapters.

#### 3.4.2 Situating the analysis in the Peruvian Amazon

Amazonian culture and local social and gender stereotypes are influenced by the history and natural environment. The Amazon has been positioned as an exotic location which is simultaneously empty (as in, the Indigenous inhabitants were not

recognised as inhabitants by the colonising Spanish) and full of natural abundance (Motta, 2011). This dichotomy of emptiness and abundance is replicated around both natural resources and female stereotypes, where women's sexuality has been described as simultaneously virginal and erotic. Motta et al (2011) have compared the construction of gender roles and sexuality to the exploitation of natural resources in Loreto region. Women have been portrayed as having an excessively eroticised sexuality and meeting male sexual demands liberally and wildly, summarised by the colloquial term *charapa ardiente* (burning charapa<sup>6</sup>) (Chirif, 2004; Motta, 2011). Local constructs of masculinity have also been shaped by the natural environment, traditional spirituality, and economic oppression (Espinoza, 2009; Shannon, et al., 2017). The construction of male roles reflects a combination of the effects of hegemonic masculinity, witnessed in broader Peruvian society, and a history of natural resource exploitation specific to the Amazon. Combined with poverty and post-colonial ethnicity dynamics, this influenced Loretano men's 'hardworking' identity.

These dynamics were reflected in tensions between ideal and actual masculinities and femininities captured by my qualitative interviews. For example, in Iquitos, the construct of liberal sexuality, as evidenced by the '*burning charapa*,' co-exists with a strong emphasis on the value of the nuclear family (Motta, 2011). Simultaneously, females were expected to be virtuously feminine (marianismo) and sexually available to men. Likewise, men demonstrated conflicting constructs: hegemonic representations of Indigenous identities positioned men as more 'savage' and subservient, yet this existed alongside *machismo* and hyper-virulent masculine behaviours.

### 3.4.3 Comparison to Peruvian Indicators

Despite a *machista* culture and de facto inequalities, the overall perception of the importance of gender equality in Peru is high. In 2012, 77% of Peruvians perceived gender equality in education, employment, and political participation as impediments to development (UNESCO, 2012). Of the three areas, the most favourable response to gender equality was in the realm of education, where over

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<sup>6</sup> *Charapa* is a colloquial term for a type of river turtle, and used to refer to someone who was born in the jungle.

85% of surveyed respondents favoured gender equality in higher education (ibid.). This was followed by 80% of respondents favouring gender equality in political representation. This is in contrast to actual national trends where, in 2016, women occupied only 26.7% of seats in national parliament and 36.8% of ministerial positions (World Bank, 2017). The lowest ranking domain of gender equality perception was in employment, where 65% of respondents felt gender equality was important and 35% of respondents were in favour of male employment in the face of job scarcity (UNESCO, 2012). This may be explained by strong family roles and gender dynamics, including *pater familias* and the relative privilege of the family unit, whereby men were seen as the primary breadwinner and women held roles of domestic and care duties. Although there was a gap between the perception of gender equality's importance and gender inequalities I identified through qualitative research (and in the subsequent WAGE Score itself), this national data reflects a positive social disposition towards gender equality. However, these results were limited to a narrow definition of public-facing aspects of gender equality and did not include social perceptions on domestic roles and intra-household decision making.

The above results are consistent with my qualitative research findings, where there appeared to be a discrepancy between the social values espoused by interview participants, and the de facto reality of stark gender inequalities. For example, low female political representation was a locally recognised problem, but at the same time interviewees felt that women would make strong leaders and should be more represented in local government structures. Of the locally-identified domains, education and health were both highly valued locally. Their value seemed to be linked to social mobility and 'getting ahead' in life, for interview participants themselves and in establishing a strong foundation for their children. Employment was also an instrumental factor in the impoverished or working-class population I interviewed. It held strong moral and social value, by providing financial stability to the family unit. As such, women seemed to undervalue their unpaid domestic and caregiving contributions when discussing labour and gender roles. Overall, despite the relatively high social commitment towards gender equality that was expressed by the interview participants, the reality was that many distinct gender inequalities persisted.

From the perspective of state-society relations, it has been argued that Peruvian women throughout various authoritarian government regimes, were never treated as citizens in their own right with legitimate claims on the state, but rather that they “...possess entitlements but cannot be sure of being able to exercise them” (Anderson, 1998, p. 94). The dichotomy between ‘lip service’ to women’s citizenship and rights, and numerous reports of sexism within various institutions, gives rise to a sense of ambiguity of whether women’s rights would be upheld by the state (Boesten, 2010). This divide between political discourse and actual experiences of women’s achievements and gender equality, replicated through various institutions, may explain why attitudes towards and experiences of gender equality are so distinctly different in Peru.

This was most apparent in the case of VAW. I found that there was a strong anti-violence sentiment expressed by the majority of interviewees, but their reported experiences of VAW were notably high and widespread. This is in contrast to research from Sub-Saharan Africa, where intimate partner violence is widely accepted and justified by women, in response to women transgressing gender norms (Uthman, et al., 2009). Boesten (2010), through a case study of Indigenous women’s experiences in battered women’s shelters in Peru, reveals the ways in which interactions of women who had experienced intimate partner violence with formal institutions such as the police reinforced and promoted violence and inequality: in this example, the officer in charge of processing victims’ claims publicly denounced the violence experienced by a young, illiterate Indigenous woman in front of the researcher, but he did so in Spanish (putting the Indigenous woman at a linguistic disadvantage) and displayed an attitude of nonchalance and blame against the victim; thus, reinforcing gender, ethnic and class hierarchies (ibid.). Another example was the reported ‘comradery’ between (male) police officers in a Limeño station who would ‘lose’ the paperwork of domestic violence reports filed against any of the officers themselves as a means of ‘protecting their own’ (ibid.). These examples speak to the division between ‘on-record’ denouncing of violent behaviours and the simultaneous reinforcement of violence and gender inequality by Peruvian institutions, which ultimately translates into high rates of violence throughout all parts of Peruvian society.

#### 3.4.4 Intersectionality and qualitative research

*These parameters of hierarchy – race, class and gender – intersect, especially in the lives of poor women [in Peru].* (Boesten, 2010, p. 4)

Bates, Hankivsky and Springer call for an intersectional approach to examine the effects of gender and its interactions with various social hierarchies, rather than treating categories of social identity in isolation (Bates, et al., 2009). Intersectionality addresses the notion “...that different categories of differentiation overlap and intertwine, that racial differentiation influences gender and vice versa, that class positions are often racialised, and that gendered discrimination differs according to class positions” (Boesten, 2010, p. 5). Intersectionality has acquired considerable conceptual purchase in areas such as human rights law, international development, gender studies, global health, and feminist activism (Boesten, 2010; Chow, 2016; Shannon, et al., 2017).

It became very clear during field interviews that exploring gender in isolation would not do justice to the representation of the lives of my interviewees. For women, poverty, geography and ethnicity staked large claims on their identity. Indigenous women from rural areas were seen as most disadvantaged; this assertion by interviewees in Iquitos established or reinforced this hegemony. In Loreto, male roles were influenced by layered influences of ethnicity, religion, the natural environment, and various degrees of integration in broader Peruvian culture. The history of Loreto’s natural resource exploitation mixed with a hegemonic representation of Indigenous identities as more ‘savage’ and subservient influenced Loreto men’s ‘hardworking’ identity.

This recognition reinforces the need for gender measures that can adequately deal with intersecting social identities. This will be further developed in during index construction in Chapter 5 and the implications of this will be discuss in Chapter 6.

### 3.4.5 Strengths and limitations of qualitative work

Overall, qualitative research facilitated a ‘deep dive’ into local social dynamics and perceptions, and enabled me to identify locally salient gender constructs. In contrast to many of the index methodologies identified and discussed in Chapter 2, I decided to build-in a local standpoint that would allow local concepts of gender equality to emerge to inform the construction of the individual women’s achievement and gender equality index. This was partially to overcome any top-down assumptions made, and to ensure that normatively-established gender domains in the international literature were balanced by local insights. The importance of qualitative research to identify local gendered phenomena and indicators has recently been recognised (Alkire and Foster, 2013; Greco, 2013), but as of yet not widely used in the field of international gender index construction, as discussed in Chapter 2. My approach knits together international perspectives (Chapter 2), qualitative research (in the current chapter), and quantitative approaches to index construction. Quantitative methods will be further discussed in Chapter 5 and 6.

Furthermore, the qualitative research detailed in the current chapter provides one way of assessing the validity of potential domains and indicators included in the eventual women’s achievement and gender equality index. By understanding the emergent domains, and their relevance to women’s achievement and gender equality, this qualitative work will contribute to the evaluation of content and construct validity, as will be detailed in Chapter 4.

The qualitative process was limited by the introduction of some pre-conceptions in the original topic guide and the inability to perform a complete iterative process during data collection. The iterative process was limited in the field because of lack of access to power, Internet and telecommunications. Data were collected during specific field trips to remote river communities. It was then processed *en masse* to ensure a cheaper transcription rate. Therefore, opportunities to reflect and adjust the topic guide in a formal iterative manner were limited. However, with each survey in the field, there was an opportunity to reflect internally on how questions,

wording, or the interview process so that subsequent interviews developed and focused.

The original topic guide was drafted using key principles derived from the review of existing international women's achievement and gender equality indexes. Therefore, this shaped my enquiries during the interviews and may have framed the results a certain way, as opposed to a completely open, un-focused strategy. This was partially overcome by the use of open-ended questioning, my community immersion and observation, as well as the inclusion of a space at the end of each interview for participants to make suggestions (See Appendix C). In general, the majority of gender domains and indicators emerging from local research aligned roughly to those established by international norms reflected in current gender indexes. This may reflect the dominance of certain socioeconomic "doxa" in Loreto, which established the framework and limitations of local understandings of gender. Despite agreement on most fronts between universally-recognised and context-specific domains and indicators above, I identified some areas of discrepancy which required further exploration: lack of information on internal household dynamics including domestic labour, community participation and leadership.



## 3.5 Implications of the qualitative findings for the construction of a gender index

### 3.5.1 Gender and the socioecological framework

The qualitative data suggested that influences on gender dynamics transcended the individual level in at least three ways. First, overall cultural and social norms – replicated at the national and regional level – reinforced certain gender stereotypes, such as *machismo*, sexuality and *familism*<sup>7</sup>. River communities were somewhat buffered from external social influences. However, greater access to transport and telecommunication has meant increasing exposure to external influences and connection to broader national and international culture (Espinoza, 2000). Second, the immediate community environment was instrumental in establishing and reinforcing gender norms, evidenced by my observations on violence, employment and community leadership in the LNR and Iquitos. Third, household-level dynamics – although not reflected to the same extent in international indexes – were an important driver of women’s achievements and gender equality, notably through the intergenerational transmission of gendered behaviours. Although the household unit is the most difficult to research or influence in terms of shifting gender behaviours and norms (Ames, 2013) and has traditionally been less recognised in mainstream gender measures (Cueva Beteta, 2006; Folbre, 2006; Kabeer, 2003; Klasen, 2004), this level of influence was prominent in many discussions, highlighting the need for greater efforts to identify and measure gender dynamics in the domestic and caregiving sphere (Folbre, 2006; Klasen, 2004).

Socioecological models recognise that behaviours and achievements do not occur in isolation and that no one individual factor can completely explain certain achievements (Bronfenbrenner, 1977; Heise, 1998; Krieger, 1994)). Individual gender experiences must be placed into the broader context of relationships, power imbalances, and social dynamics that underpin them. Gender equality may be conceptualised as absolute and relative achievements, with these achievements

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<sup>7</sup> **Familism** is a social structure where the needs of the family is placed in a position of importance.

being shaped by individual, household, community, and societal influences. The insights derived from qualitative research, organised into the socioecological framework, will help guide the construction of the women's achievement and gender equality index and will be discussed further in subsequent chapters.

### 3.5.2 Achievement versus equality

During the analysis of interview transcripts pertaining to local constructs of women's achievement and gender equality, I became aware of two distinct conceptualisations which were emerging from the data.

On the one hand, participants valued their own life achievements in a range of areas such as education, employment, health, and asset ownership. These achievements reflected individual ability, available life opportunities, and the freedom to act on these opportunities. The capabilities approach conceptualises individual empowerment as a product of both functionings (individual achievements) and capabilities (the ability to achieve) (Gram, et al., 2017; Nussbaum, 2000; Sen, 1985). In the context of this research, participants' notions of gendered achievements can be thought of as a measure of their functionings and capabilities.

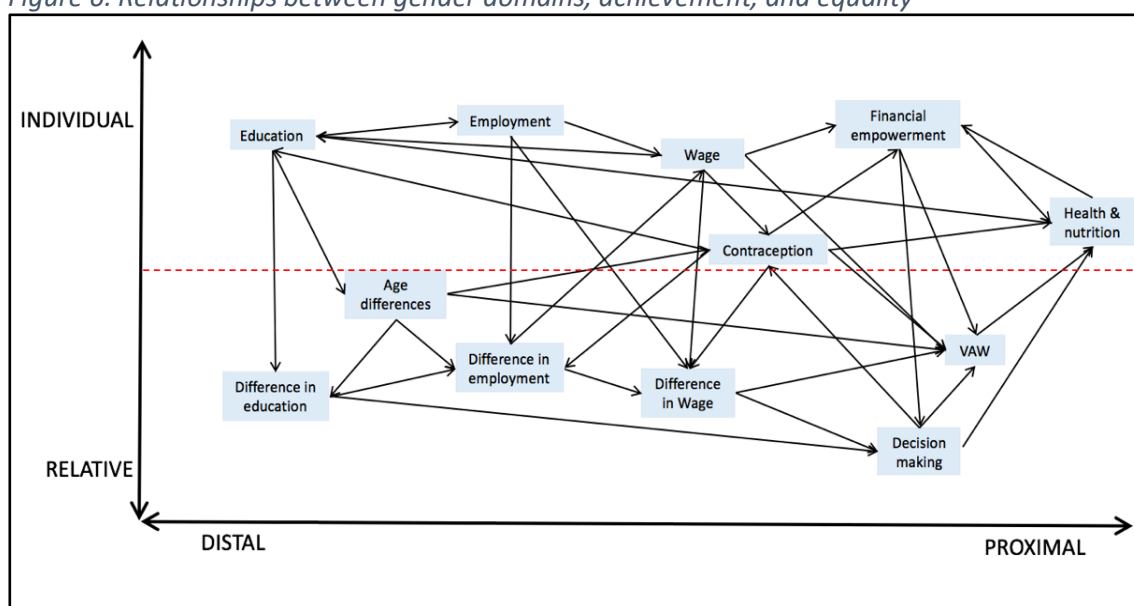
On the other hand, the second conceptualisation that emerged was the notion of being or feeling equal to others of the opposite gender. This was expressed by women interviewed as either having comparable achievements to men or feeling as if their contribution to society was valued equally. For most women, this sense of equality was determined by their relative position to, or relationship with, their male spouse<sup>8</sup>. For example, some participants valued having equal employment to their spouse whilst others valued making equal contributions to the household. So, between an individual and their spouse, the concept of gender equality reflected both equal achievements and equal processes.

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<sup>8</sup> All participants interviewed identified as heterosexual.

To bridge these two concepts, I undertook a mapping exercise which placed domains along two axes: the x axis represents how proximal the gendered phenomenon is to health and development; the y axis represents whether the indicators is inherent to the individual or relative in nature, i.e. whether it is measured in relation to one's partner (Figure 6). The individual/relative spectrum of the y axis represents the need to conceptualise and measure both *individual achievements* and *gender equality*.

Figure 6: Relationships between gender domains, achievement, and equality



### 3.5.3 Bringing women's achievement and gender equality together via the socioecological framework

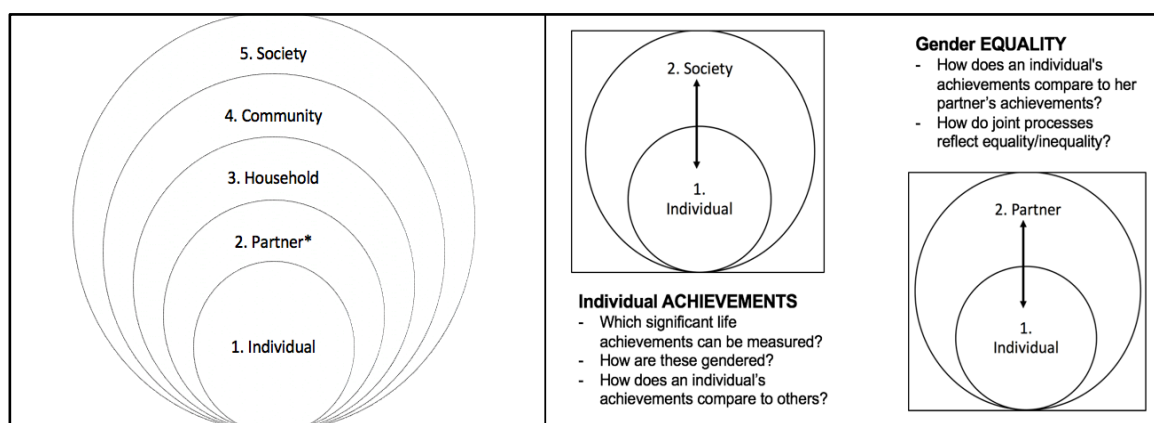
Following the gender domain mapping exercise described above, and in response to the emergence of two separate but inter-related constructs of achievement and equality, I used the socioecological model first introduced in Chapter 1 to conceptualise how the concepts of *achievement* and *equality* might be measured in a gender index. Figure 7 details how three key levels of the socioecological model – the individual, the partnership, and society – are interrelated and how these levels can be used to guide the measurement of gender achievement and equality.

With regards to *achievements*, a woman embodies certain stand-alone or ‘absolute’ achievements as an individual, which may reflect an aspect of personal empowerment or development. These may include her education level, and her employment and wage. These are gendered, in that they reflect broader aspects of gender and development in society, but are separate to her experience of *equality*. What will help place these achievements into context, however, is how the individual woman compares to those around her at the broader societal level.

*Gender equality* is a relative concept that depends on two or more individuals or groups. At the individual level, and in the qualitative results, this normally referred to differences between an individual woman and her partner. These differences may be due to differences in achievement, such as the difference in education levels, or differences in processes such as decision-making between a woman and her male partner. So, these differences in performance and process were relative to one’s partner. These could be conceptualised as being either male dominant, equal or female dominant. There seemed to be a strong disposition towards equality with one’s partner, and the implications of measuring this will be explored further in subsequent chapters. These gender differences occur independently of an individual woman’s overall achievements.

This framework will be used to guide the measurement of women’s achievement and gender equality in subsequent chapters.

*Figure 7: Concepts of individual achievement and gender equality derived from the socio-ecological model*



*Ecological model adapted from Rayner (2009)*

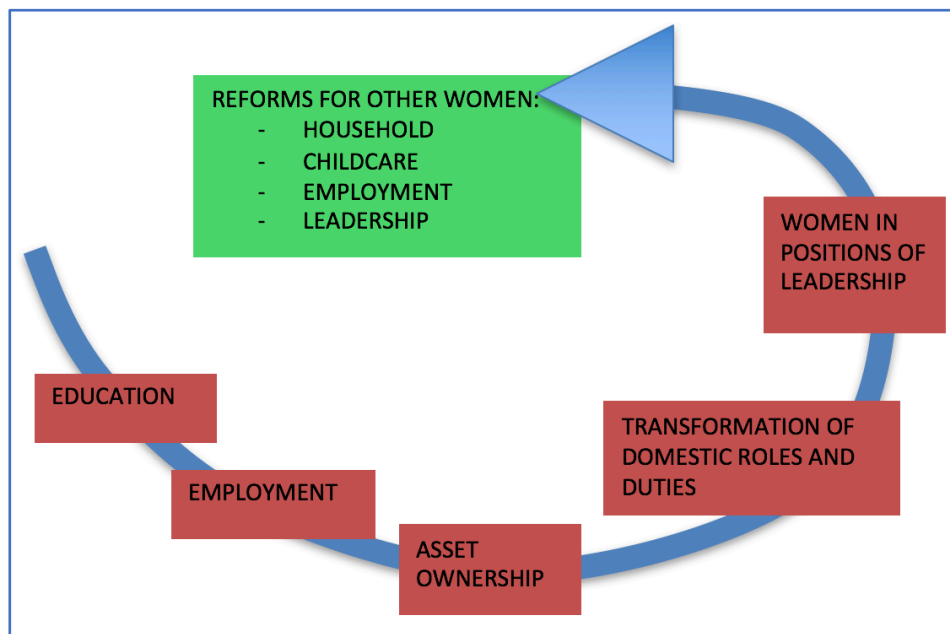
### 3.5.4 Empowerment and positively-reinforcing gender equality cycles

I found that domains of gender achievements could be arranged into levels of actualisation, where realisation within each domain occur in a stepwise manner. There may also be threshold levels of achievement within each domain that can open further life opportunities for each individual. An example of this would be the data emerging from the interviews linking educational attainment to future life opportunities: whilst being literate allowed individuals to participate in certain key life activities, primary school education provided even more tools and life empowerment, and secondary schooling allowed the opportunity to seek broader life opportunities such as the ability to secure paid employment and start moving into positions of community leadership.

Therefore, achievement is incremental. It seemed that in order to actualise external indicators of empowerment, such as in leadership roles, women needed to achieve a certain level of literacy, a certain level of education, and a certain community standing through local roles or employment. Figure 8 summarises this ‘virtuous cycle’ in greater detail. The achievement of measureable outcomes such as education and employment may then feed into the possibility of becoming a community leader. Most importantly, however, women who became leaders were then perceived as enablers for other women through focusing on their needs, and re-investing in women’s broader empowerment. Women leaders were seen as champions for other women in their community; their position was a result of personal achievements but had the capacity to impact positively on other women’s achievements, too.

Although these stepped thresholds are one way to ‘benchmark’ individual achievements, an alternative would be to explore how the individual performs in relation to an optimal level of achievement. This concept will be explored further in Chapters 4 and 5, and will help shape the overall index construction.

Figure 8: Positively-reinforcing cycle of women in leadership



### 3.6 Conclusion

In summary, qualitative research detailed in the current chapter has placed local gender dynamics into context and sets the scene for the construction of a women's achievement and gender equality index. The identification of locally salient gender constructs, and the subsequent structure of twelve domains of women's achievement and gender equality, will guide the identification and organisation of specific gender indicators from the 2015 Peruvian *Encuesta Demográfica y de Salud Familiar* (ENDES, Demographic and Health Survey). These observations will also help in the evaluation of the content and construct validity of the overall index. These will be discussed further in Chapter 4.





## CHAPTER 4: IDENTIFYING INDICATORS OF WOMEN'S ACHIEVEMENT AND GENDER EQUALITY AND EVALUATING THEIR VALIDITY

### 4.1 Introduction

Chapter 3 explored locally salient gender dynamics in the LNR and Iquitos and organised these into domains to provide a contextual and conceptual basis for the construction of an individual-level women's achievement and gender equality index. The twelve domains identified through thematic analysis included education, employment, financial empowerment, domestic duties, decision-making, health, family planning, leadership, community participation, asset ownership, age differences and maturity, and gender-based violence. However, moving from the domains, as concepts, towards the empirical measurement of such concepts is challenging.

There have been numerous suggested approaches to the selection of indicators to construct a multidimensional index (See Section 1.4.3 in Chapter 1 above). Mueller (2004) describes this process as 'operationalisation,' moving from the abstract to the empirical level. Hawken and Munck (2013) state that shifting from an underlying concept to raw data on indicators involves systematically selecting indicators which measure conceptual dimensions.

Gender-disaggregated data for health and development indicators are increasingly available globally (UNECLAC, 2002). There are multiple open-access sources of micro-level data quantifying aspects of gender, such as the Demographic and Health Survey (DHS) (USAID, 2016). As much information around gender equality and health already exists, my thesis focused on ways to best harness existing data. The first challenge was identifying a suitable existing dataset that was publicly available, presented micro-level (individual) data, and reported data that could be compiled into gender achievement and equality indicators. One source relevant to Peru is the Peruvian *Encuesta Demográfica y de Salud Familiar* (ENDES), a

nationally-adapted household survey programme based on the DHS model, which will be detailed further below.

Following the identification of indicators, several complementary methods may be used to evaluate the validity of a measurement instrument (Batura, et al., 2016; Landy, 1986). The Trinitarian (“three Cs”) scheme is commonly used to guide validation and considers content, construct, and criterion validity (Batura, et al., 2016; Guion, 1980; Terweea, et al., 2007). Although ‘operationalising’ complex social observations into solid measures is challenging, this stage provides an opportunity to apply a structured approach to item selection and assess the validity of selected items through a mix of qualitative and quantitative methods.

The selected indicators should, to the best of their ability, attempt to capture local dynamics and reflect the overarching conceptual framework (Mueller, 2004). It is recognised that shifting from theory to concrete terms in the measurement of gender equality risks losing the original concepts in translation (Kabeer, 1999). Therefore, it is important to ensure a systematic and structured approach that reflects both local constructs and the overarching conceptual framework (Mueller, 2004).

The primary aims of Chapter 4 are:

- a) To identify available gender indicators from the 2015 ENDES which represent the domains of gender achievement and equality identified in Chapter 3; and,
- b) To evaluate their content and construct validity through a combination of strategies, including cognitive interviews

I will achieve this by comparing gender indicators available in the 2015 ENDES to gender domains generated from qualitative research detailed in Chapter 3. I will then present the results of probe-based cognitive interviews which sought to assess the content and construct validity of each indicator. The chapter is therefore divided into two sections: the identification and selection of available women’s achievement and gender equality indicators (items), including a description of the 2015 ENDES dataset; and, an evaluation of the content and construct validity of

domains and indicators. From here on in, I will use the term 'item' to refer to a distinct, measurable component of the dataset, and 'domains' to describe the overarching grouping of these items.

## 4.2 Identification and selection of women's achievement and gender equality items

### 4.2.1 The *Encuesta Demográfica y de Salud Familiar* (ENDES) dataset

The Demographic and Health Survey (DHS) is a large national household survey programme operating in 91 countries worldwide (USAID, 2017). DHS survey data have been collected from Peru since 1986 under the governance of the *Instituto Nacional de Estadísticas e Informáticas* (INEI) and is known as *la Encuesta Demográfica y de Salud Familiar* (ENDES). ENDES has been performed 15 times between 1986 and 2017. Between 1986 and 2011, the survey was performed every five years. Since 2011 it has been performed annually. Antecedent surveys prior to ENDES include: Urban and Rural Fertility Survey and the Induced Abortion Survey in Lima (1969); National Demographic Survey – EDEN (1974 to 1976); National Fertility Survey – ENAF (1977 to 1978); National Contraceptive Prevalence Survey (ENPA) (1981) (USAID, 2017).

The ENDES survey methodology, sampling strategies and basic questionnaire formats have evolved since 1991 and now include modules on empowerment, domestic violence, and reproductive health. In all surveys, cluster random sampling was performed using information from the Census of Population and Housing. The sample size of ENDES 2015 was 35,900 housing units, corresponding to 14, 140 homes in metropolitan areas, 9,310 dwellings in other urban locations, and 12,450 homes in rural areas (USAID, 2016). Of the 35,900 households that were selected for the 2015 survey, a response rate of 99.0% of households and 97.3% of individual women was achieved (USAID, 2017).

ENDES data is held via an open-access online platform at <http://inei.gob.pe>. It is available to download in modules. I first obtained access to the full 2015 ENDES dataset in July 2016.

#### 4.2.2 Selection of Items

With my two research assistants, I reviewed the 2015 ENDES questionnaire and the INEI summary of available ENDES items (both available in Appendix D). We first performed the review in July 2015 (using earlier ENDES data) and again in July 2016. We did both reviews using the Spanish (*castallano*) version of the ENDES questionnaire. We first extracted all 3,549 indicators belonging to the ‘individual recode’ section of ENDES. From here, we considered each item and its relevance to the gender constructs and domains identified in Chapters 2 and 3. An item was deemed relevant if it summarised an aspect of women’s achievement or gender equality, belonged to the *women’s empowerment* or *violence against women* modules, or contained information that would help quantify gender equality between a woman and her partner. Items were only selected if they contained information relevant to an individual’s achievement or their relationship to their partner.

I refined the list of items initially selected after considering their appropriateness using cognitive interviewing. Cognitive interviewing is a technique commonly used to identify and correct problems with survey questions and to understand survey respondents’ thought processes as they read think through questions and answers (Willis, 1999). Here, the cognitive interview process entailed asking the specific survey questions related to each selected item from the ENDES 2015 questionnaire while simultaneously collecting additional verbal information about the survey responses to evaluate the quality of the response and help determine whether the item was appropriate for inclusion in the overall Score (Beatty, 2007). The cognitive interview strategy is described further in Section 4.3, below.

Based on the results of the cognitive interviews, I made a decision about the appropriateness of each item for the overall women’s achievement and gender equality score. I documented this process in the Women’s Achievement and Gender Equality (WAGE) Index Construction Table, which was first introduced in Chapter 3, and is further developed in this chapter. For each domain, I tabulated each ENDES item against exploratory qualitative research and cognitive interview results. This is detailed further in the results section (Table 8).

Finally, selected items will be arranged by the conceptual domains identified in Chapters 2 and 3, and presented in the WAGE Index Construction Table. Domains identified included education, employment, financial empowerment, domestic duties, decision-making, health, family planning, leadership, community participation, age differences and gender-based violence.

#### 4.2.3 Selected ENDES Items

Of the 3,549 items contained in the 2015 ENDES survey 'individual recode' section, I selected 57 based on the criteria defined above. Some items were very similar. In such cases, I included the item that contained the most nuanced information. For example, when a continuous item was available and appropriate, I included it. Some raw items were summarised into a summary indicator. For example, questions on lifetime experience of violence were summarised into minor physical, major physical, emotional and sexual violence, so these summary items were included. Relevant items were mainly located in the women's empowerment and violence modules. The women's module contained basic demographic and socioeconomic information, as well as information about health and contraception. The empowerment module, for which only a sub-section of participants were selected, contained more information on partner characteristics and decision-making. The violence module detailed information on individual experiences of violence from various people including a partner; only a sub-sample of participants were selected to this module too. Missing and incomplete data will be discussed further in Chapter 5.

Of the 57 items, there were 14 potentially relevant indicators listed in the ENDES 2015 questionnaire where the data for these were not populated. This probably reflects that, although there are globally recommended indicators for the international DHS programme, ENDES did not include some of them (USAID, 2017). The fourteen unpopulated items included: items V539 and V540 (who received late husband's property or assets), V850A and B (can respondent refuse sex or ask husband to use a condom), V822 (wife justified to ask husband to use condom if she suspected he was having extramarital sex), V130 (religion), D103C (spouse ever

insulted or made to feel bad), D105J (spouse ever twisted arm or pulled hair), D117A (times hit by other person not partner in last 12 months), D123 (first intercourse coerced or forced), D128 (have ever told anyone else about violence), V769A (could get a female condom), and V821A,B,C (age of last sexual partners). These indicators were therefore excluded from the analysis.

A total of 43 potential gender indicators were identified and extracted. They are detailed in Table 5, below.

**Table 5: Description of gender items extracted from ENDES 2015**

Gender domain	ENDES Indicators	Description of data Item type; possible responses
Education	School attendance	Binary: Y/N
	Educational attainment	Continuous (years) Scale (level of education)
Employment	Literacy	Categorical: no/partial/yes
	Current work	Binary: Y/N
	Informal/vulnerable/seasonal work	Binary: Y/N
	Occupation	Categorical: job description
Financial security	Payment and wages	Categorical
	Financial decision making	Categorical
	Wage disparity	Categorical
	Home ownership	Binary: Y/N
Domestic duties	Land ownership	Binary: Y/N
	Caregiving responsibilities for children	Binary: Y/N
	Domestic paid labour	Binary: Y/N
Household	Sex of head of household	Binary: Y/N
	Household headship	Binary: Y/N
Decision-making	Healthcare decision making	Categorical: self, partner, joint, other
	Household purchasing	Categorical: self, partner, joint, other
	Smaller household items	Categorical: self, partner, joint, other
	Cooking	Categorical: self, partner, joint, other
	Family visiting	Categorical: self, partner, joint, other
Health	Barriers to health access	Categorical: type of barrier
	Healthcare facility attendance	Binary: Y/N
	Health insurance	Binary: Y/N
	Body mass index	Continuous, or z-score
Family planning	Anaemia	Continuous, or quintiles
	Contraception use	Binary: Y/N
	Modern contraception use	Binary: Y/N
	Unmet need	Binary: Y/N
	Contraception decision making	Categorical: self, partner, joint, other
	Sexual health negotiation	Binary: Y/N
	Negotiation of sex 1	Binary: Y/N
	Negotiation of sex 2	Binary: Y/N
Leadership Community participation	Negotiation of condom use	Binary: Y/N
	NA	
Violence	NA	
	Attitudes towards wife-beating	Binary: Y/N
	Number of control issues with spouse	Numerical (count up to 6 issues)
	Emotional violence	Binary: Y/N
	Less severe violence	Binary: Y/N
	Severe violence	Binary: Y/N
Age and age differences	Sexual violence	Binary: Y/N
	Difference between partners	Continuous
	Age at first cohabitation	Continuous
	Age at first sexual experience	Continuous
	Age at first birth	Continuous



Asset ownership: not sufficiently discriminatory (described further below)



Domestic roles: very few indicators



No ENDES items pertaining to leadership or community participation

\* These will be discussed further in the analysis below



## 4.3 Cognitive interviews: a way to assess the validity of domains and indicators

### 4.3.1 Assessment of the validity of indicators and domains

The Trinitarian (“three C”) scheme, commonly used to guide validation, includes:

1. Content validity, defined as “the extent to which the domain of interest is comprehensively sampled by the items in the questionnaire” (Terwee, et al., 2007).
2. Construct validity, defined as “the extent to which scores on a particular instrument relate to other measures in a manner that is consistent with theoretically derived hypotheses concerning the concepts that are being measured” (ibid.).
3. Criterion validity, defined as the extent to which scores on a particular instrument relate to a gold standard (ibid.).

Because there is no agreed gold standard of the individualised measurement of women’s achievement or gender equality, I was not able to test for criterion validity. I was, however, able to assess content and construct validity.

It is recognised that a measurement tool cannot be adequately assessed with one method alone; many approaches to the evaluation of multidimensional measures utilise a mixed methods approach (Batura, et al., 2016; Gram, et al., 2017; Johnson, et al., 2007; Morrison, et al., 2015). To evaluate construct validity, I reflected on the literature summarised in the literature review (Chapter 2), as well as results from the interviews and focus group discussions detailed in Chapter 3. To evaluate content validity, I decided to use cognitive interviews, which will be detailed below.

### 4.3.2 Cognitive Interviewing

Cognitive interviewing is defined as: “the administration of draft survey questions while collecting additional verbal information about the survey responses, which is

used to evaluate the quality of the response or to help determine whether the question is generating the information that its author intends” (Beatty, 2007, p. 287). The purpose of cognitive interviewing is to identify and correct problems with survey questions, and to understand the deeper internal processes around a survey respondent’s answer (Willis, 1999). The cognitive interview framework includes the following:

1. Comprehension of the question, including question intent and meaning of terms;
2. Retrieval from memory of relevant information, influenced by recall-ability of information and recall strategy;
3. Decision processes of motivation, sensitivity, and social desirability; and
4. Response process mapping (Jobe & Herrmann, 1996; Tourangeau, 1984).

There are two accepted strategies for cognitive interviewing: think-aloud and verbal probing (Haeger, et al., 2012; Willis, 1999). Think-aloud refers to a technique where the interviewee is encouraged to verbalise their thought processes as they answer survey questions (Haeger, et al., 2012; Redline, et al., 2001). This can be either concurrent, happening during each interview question, or retrospective, occurring at the end of the interview itself (Haeger, et al., 2012; Redline, et al., 2001). Probe-based interviews can also be concurrent or retrospective (Haeger, et al., 2012; Willis, 1999). Verbal probing is characterised by specific questions in addition to the original survey question designed to elicit further information about the subject’s response (Haeger, et al., 2012; Jobe & Herrmann, 1996; Willis, 1999).

I chose to use verbal probing to understand the individual’s interpretation of the question, whether the question actually evaluated an aspect of gender equality relevant to the local context, and the importance of the item to the individual. The advantage of the verbal probing method in this instance was that interviewees needed little training or preparation to answer the questions posed, and interviewers could probe in a structured manner, especially when participants felt shy about answering.

I began cognitive interviews by asking each participant the original ENDES question

verbatim. These questions were arranged according to the domains identified in Chapter 3. Following each question, I used a series of structured follow-up probes to understand participant responses. Probe questions explored the following:

1. Interpretation of the question: *Can you tell me in your own words what I've asked about?*
2. Ensuring the question actually referred to an aspect of gender equality relevant to the local context: *How would you define a leader? Is this different between men and women?*
3. The importance of the item to the individual: *Is education important to you? Why?*

I also used a 'real life' walk-through scenario to clarify participant responses if necessary. This helped clarify areas when participant responses were vague, or when responses involved the consideration of multiple steps. For example, I used the following 'walk-through' scenario to understand contraceptive decision-making:

*When you first went to the clinic/technico/hospital for contraception...*

- *Did you go alone? Who went with you?*
- *Did you get a choice of different types of contraception?*
- *How did you come to this decision?*
- *Did you discuss this with your husband/partner? Did he agree?*
- *Did his opinion change or influence your decision?*

Table 6 details the tool I designed and used for the cognitive interviews.



**Table 6: Cognitive Interviewing tool**

Gender Domains	SURVEY QUESTIONS		
Introduction and marital status	<p>Thank you for participating in this survey.</p> <p>These questions are designed to get your feedback and thoughts around how we measure women's and men's roles in your community.</p> <p>I am going to ask you a series of questions about your role in the community, your life experiences, and your household.</p> <p>After each question, I will ask you some more about your response and how you feel about this response.</p> <p>Please share any ideas, worries or suggestions about each question. Please be as honest and open as you like.</p> <p><u>Marital status</u></p> <p>Are you currently married or living together with a man as if married?</p> <p>Have you ever been married or lived together with a man as if married?</p> <p>What is your marital status now: are you widowed, divorced, or separated?</p> <p>What is the name of your husband/partner/ex-husband? _____</p> <p>How old was your (husband/partner) on his last birthday?</p>		
	SURVEY QUESTIONS		COGNITIVE INTERVIEWING PROBES
	Women's achievement	Responses to partner-specific questions	Probing questions
Literacy and educational attainment	<p>Have you ever attended school?</p> <p>What is the highest level of school you attended?</p> <p>Primary, secondary, or higher?</p> <p>What was the highest (grade/form/year) you completed at that level?</p> <p>Now I would like you to read this sentence to me.</p> <p><i>"The Amazon River is big and long"</i></p>	<p>Did your (last) (husband/partner) ever attend school?</p> <p>What was the highest level of school he attended: primary, secondary, or higher?</p> <p>What was the highest (grade/form/year) he completed at that level?</p> <p>Can your (last) (husband/partner) read?</p>	<p>Can you tell me in your own words what I've asked about?</p> <p>Is education important to you? Why?</p> <p>Do you think your education better/equal/less than your partner's education?</p> <p>When you attended school, did boys or girls get a different quality of education or different attention from the teacher?</p> <p>In your household, does it matter if your husband/partner has better/equal/less education than you? Why?</p> <p>Did you have any difficulty answering these questions?</p> <p>What does "work/employment/occupation" mean to you?</p>
Employment and occupation	<p>Aside from your own housework, have you done any work in the last seven days?</p> <p>As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business.</p> <p>In the last seven days, have you done any of these things or any other work?</p> <p>What is your occupation, that is, what kind of work do you mainly do?</p> <p>Do you do this work for a member of your family, for someone else, or are you self-employed?</p> <p>Do you usually work throughout the year, or do you work seasonally, or only once in a while?</p>	<p>What is your (husband's/ partner's) occupation?</p> <p>That is, what kind of work does he mainly do?</p> <p>Does he do this work for a family member, for someone else, or is he self-employed?</p> <p>Does he usually work throughout the year, or does he work seasonally, or once in a while?</p>	<p>When you said (you did/didn't work) how did you get to this response? (<i>some women answer "no" when I ask if they work, but then they do perform agricultural labour</i>)</p> <p>Do you get paid at all for anything that you do? What is this?</p> <p>Between you and your partner/husband, who normally does the: Cleaning?</p> <p>Cooking? Childcare?</p> <p>Do you get paid in money for your work? Does your partner get paid in money for his work? Is this more/equal/less than you?</p> <p>If he is paid more/less than you, does this give you/him more power over you/him, such as when major decisions are made?</p>

Political representation	Are you paid in cash or kind for this work or are you not paid at all?	Is he paid in cash or kind for this work or not paid at all?
	Are you a member of any community group or organisation?	Is your partner/husband a member of any community group or organisation?
Control over own earnings (most surveys)	Do you have any local female leaders?	Are there any local male leaders?
	Do you have any female political representatives?	Do you have any male political representatives?
	Who usually decides how the money you earn will be used: you, your (husband/partner), or you and your (husband/partner) jointly?	
	Would you say that the money that you earn is more than what your (husband/partner) earns, less than what he earns, or about the same?	
Age at first marriage	Who usually decides how your (husband's/partner's) earnings will be used: you, your (husband/partner), or you and your (husband/partner) jointly?	
	In what month and year did you start living with your (husband/partner)?	How old was your husband/partner when you started living together?
Age at first birth	Now I would like to ask about all the births you have had during your life.	
	Have you ever given birth?	
	How old were you when you gave birth to your first child?	How old was your husband/partner when you had your first child?
	How old were you when you had sexual intercourse for the very first time?	How old was your husband/partner when he started sexual intercourse for the first time?
Contraceptive use and healthcare access	When did your last menstrual period start?	
	Are you currently doing something or using any method to delay or avoid getting pregnant?	
	Which method are you using?	
	In the last 12 months, has someone talked to you about family planning?	
	Now I have some questions about the future. Would you like to have (a/another) child, or would you prefer not to have any (more) children?	
	Would you say that using contraception is mainly your decision, mainly your (husband's/partner's) decision, or did you both decide together?	
Women's participation in household and healthcare decisions	Does your (husband/partner) want the same number of children that you want, or does he want more or fewer than you want?	
	Who usually makes decisions about health care for yourself: you, your (husband/partner), you and your (husband/partner) jointly, or someone else?	
	Who usually makes decisions about making major household purchases?	
	Who usually makes decisions about visits to your family or relatives?	

If your husband didn't have money would you be able to provide for yourself/your children/your family?  
Can you clarify – how did you understand this question?

How would you define a leader? Is this different between men and women?  
What would be different here if there were men/women as leaders?  
Did you have any difficulty answering this question?  
Can you repeat this question in your own words?

Is making money for your own use important to you?  
Does making more money give you more power in your relationship?

Is this age normal for women/men in your community?  
Did you feel old/mature enough when you started living with him?

Is this age normal for women/men in your community?

What would be considered “too young” for women? Is this the same as for men?

Did you get support from: Partner? Family? Health service? Other?

When you first went to the clinic/technico/hospital for contraception...

- Did you go alone? Who went with you?
- Did you get a choice of different types of contraception?
- How did you come to this decision?
- Did you discuss this with your husband/partner? Did he agree?
- Did his opinion change or influence your decision?

1. Scenario: When you are unwell and need to go to the doctor/health post, what happens?

- Do you need to ask permission?
- Who takes you?
- Who looks after the children?
- How do you get the money to go?

2. Situation/scenario: When deciding on purchasing an animal for the household... what happens? Who handles the money? Who decides on the animal? Who actually purchases/procures this?

Women's attitudes toward wife-beating by husbands	<p>In your opinion, is a husband justified in hitting or beating his wife in the following situations:</p> <p>If she goes out without telling him? If she neglects the children?</p> <p>If she argues with him?</p> <p>If she refuses to have sex with him? If she burns the food?</p>	
Women's opinions on whether a woman can refuse sex to her husband	<p>If a wife knows her husband has a disease that she can get during sexual intercourse, is she justified in asking that they use a condom when they have sex?</p> <p>Is a wife justified in refusing to have sex with her husband when she knows he has sex with other women?</p> <p>Can you say no to your (husband/partner) if you do not want to have sexual intercourse?</p> <p>Could you ask your (husband/partner) to use a condom if you wanted him to?</p>	
Hurdles faced by women in accessing health care for themselves	<p>Many different factors can prevent women from getting medical advice or treatment for themselves. When you are sick and want to get medical advice or treatment, is each of the following a big problem or not?</p> <ul style="list-style-type: none"> <li>• Getting permission to go to the doctor?</li> <li>• Getting money needed for advice or treatment?</li> <li>• The distance to the health facility?</li> <li>• Not wanting to go alone?</li> </ul>	
Asset ownership	<p>Do you own this or any other house either alone or jointly with someone else?</p> <p>Do you own any land either alone or jointly with someone else?</p>	
Knowledge and use of micro-credit programmes	Are there any social support programmes helping you financially?	Are there any social support programmes helping your husband financially?
Attitudes about gender roles	What do you think a woman's role in this community should be?	What do you think a man's role in this community should be?
Membership in any association	Do you belong to community group or organisation? Do you do any activities together with other women? What?	Does your husband/partner you belong to community group or organisation?
Having a bank account	Do you attend any community meetings? Do you have a bank account or access to financial credit?	Does he attend any community meetings? Does your partner/husband have a bank account or access to credit?

In your opinion, is this process the same for other women such as yourself?

3. When you want to go and see your family/relatives, do you have any problems in getting there? Does your husband/partner/family stop you from visiting? Do you feel safe visiting alone or do you travel together?

Did you have any difficulty answering this question?

Do most people share your opinion on this?

Is violence a problem here? Why/why not?

Did you have any difficulty answering this question?

Do most people share your opinion on this?

Is this a problem here? Why/why not?

What do you understand by the word "permission"? Does your family/husband need to give you permission?

In your opinion, are these problems (identified) faced by most women/men here?

Was this easy or hard to answer?

Is it important to you to own your house/land? Why?

Who would you say in your household owns the animals/boat/moto? How did you decide on purchasing them?

Can you tell me more about these programmes?

How have they changed your life?

What do you like about these programmes?

Do they cause any problems?

Is this difficult to answer? Why?

Are these roles very established/set here? Do women's and men's roles change?

Are they changing?

If you attend meetings/groups, do you say or do anything actively?

Does your husband do or say anything actively?

Who normally talks at these meetings?

Who makes the big decisions in these groups or meetings?

If you needed money urgently and did not have any money, what would you do?

- Ask you husband/partner?
- Ask friends or family?
- Do nothing and go without?





#### 4.3.2.1 Sampling, recruitment and consent for cognitive interviews

Following the initial round of qualitative research in the LNR and Iquitos between March and July 2015, I returned to the same locations and performed cognitive interviews with different participants between July and September 2015.

I incorporated feedback from the initial qualitative interviews to further develop my cognitive interviewing strategy. First, I realised the importance of interviewing men and couples in addition to women when exploring responses to women's achievement and gender equality questions, so I refined my sampling approach to include these groups. Second, I was concerned that some of the interviewees' responses to my original qualitative questions did not have sufficient depth to enable insight into the reality of participants' lives and the manner in which they answered questions. To enable greater depth of understanding, and to glean some insight into the validity of the indicators, I incorporated 'real life' walk-through scenarios within the cognitive interview strategy.

In order to sample a representative range of women, men and couples, I aimed for around 30 participants, with 15 being either men or individuals who interviewed as a couple. In total, I ended up collecting information from 38 individual women, 9 individual men, and 12 individuals interviewed as a couple.

I recruited participants from the same two locations as described in Chapter 3. In the LNR, I recruited through the promotor (lay health worker) in the communities of San Pedro, Mangua, and Centro Unido. The community members were familiar with me from my previous research, and I was able to introduce my work and perform the consent process in an open and conversational manner before commencing the research. In Iquitos, I returned to the Hospital Regional, where I worked with the same Research Assistants and one additional Spanish-speaking volunteer. We recruited participants in a targeted manner from the hospital waiting area with the consent of the hospital Director and clinic staff. We performed a similar introduction and consent process, where we would openly discuss the research and provide a space for questions and clarifications before the consent form was signed.

#### 4.3.2.2 Data processing and analysis

Interview recordings were transcribed in Spanish (*Castellano*). The results from each transcription were then entered into a data matrix, using coding in the primary language. Data was entered into an Excel spreadsheet, with each row representing an individual interviewee.

Columns were divided by twelve gender domains, as defined by the Women's Achievement and Gender Equality Index construction table (WAGE Table): education, employment, financial empowerment, domestic duties, decision-making, health, family planning, leadership, community participation, asset ownership, age differences and maturity, and gender violence (Table 8).

Each domain was divided into three sections: the individual's interpretation of the question; ensuring the question actually examined an aspect of gender equality relevant to the local context; and, the importance of the item to the individual and perception of gender equality. In addition, I graded the respondents' understanding of the question as 'good,' 'fair,' or 'poor.' Using qualitative information from the probing questions, I constructed two further categories for a) the perceived difference between partners and how this was important to the individual; and b) how the achievement of certain categories would empower or be important to an individual's life course (Appendix E).

Whilst some information collected was quantitative in nature, the analysis focused on the qualitative responses and understanding of survey questions elicited via verbal probes.

#### 4.3.2.3 Characteristics of survey participants

I performed a total of 52 cognitive interviews between July and September 2015. Participants included nine men, 39 women, and six couples. The average age of participants was 43 years in the LNR and 35.5 years in Iquitos, with an overall average age of 39 years. Participants consisted of community members with a

range of educational, professional, and life backgrounds. Of the 52 participants, ten were married, 29 cohabitating, three were partnered but not cohabiting, five were separated, two were single, one divorced, and one was widowed.

Women surveyed had an average of 7.5 years of education, compared to men surveyed who had an average of nine year's education. Four women reported having no formal education at all. Thirteen couples had equal levels of education. Women surveyed mainly held agricultural, domestic, and small-business employment, although some were retired or unemployed. Women often held multiple roles, both paid and unpaid. Men also held a range of jobs including in agriculture, services, sales, mining, military and teaching, although none of my participants were unemployed. The majority of survey participants regardless of gender recognised that women tended to do the majority of domestic labour.

### 4.3.3 Results of cognitive interviews

#### 4.3.3.1 Education

Questions about education were generally well understood: only nine participants had minor difficulties around concepts, wording, language, or rapport. Education achievement was reported as a continuous item (years of education) or a categorical item (such as primary, secondary, or tertiary levels of education).

Most participants saw education as overwhelmingly important to their lives and for the advancement of future generations: "Education enables one to open more into society and with studies you can relate more to any person. If you can write a letter, you can go to learn, if you don't know how to read or write, you're a rookie [*novato*]<sup>9</sup>" (E&M, couple interview, LNR). Another interviewee said: "If one doesn't study or learn anything in college, we are not valued, we are not able to have a dialogue, because we lack a vocation, the vocabulary" (AM, female interviewee, LNR). Education was seen as a foundation for employment, financial security, and

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<sup>9</sup> The term *novato* roughly translates to 'rookie' or 'novice,' indicating a person who is naïve or unexperienced

upwards social mobility: “Because without education you are nothing, without education you cannot work to get ahead in life” (C, female interviewee, LNR).

Many women recognised that they had less education than their spouse: “He knows more than I do. Me, not as much, not as much as him. He is the one who completed his primary education” (V, female interviewee, LNR). Some men, on the other hand, positioned themselves as being more educated than their spouse despite having less formal education: “Perhaps with 5<sup>th</sup> grade in primary I have more education than her because I’m able to develop in any type of studies. In history, math, communication, the environment, I’m able to answer. I’ve studied what they are recently studying... she has recently been studying secondary” (E, male interviewee, LNR).

Educational achievements had a hierarchy, such that having basic literacy provided key life/household skills, having primary education enhanced one’s basic range of life skills, having secondary education opened the door to employment opportunities, and having tertiary education allowed progression to secure employment and a level of ‘professionalism’: “I don’t have better education than my husband, it’s not equal. Because here the primary education is limited, secondary education is more advanced. You have more knowledge when you complete secondary education, but in primary school you are only taught a little. Secondary is better, it is better to continue education; to be a professional you must have more knowledge. Because stopping primary education we don’t have the knowledge, not to get ahead [in life]. Yes, I want to learn, I hope to study more, but I’m not able to, that’s the way it is” (AL, female interviewee, LNR).

#### 4.3.3.2 Employment

There was a good understanding of the questions about employment. Four participants had difficulty defining work and one participant did not understand the question. These questions were also answered openly by respondents. Discussions with participants revolved around their income-generating activities, professional identity, salary level and stability of employment. Given the high rates of informal

labour in the city and subsistence work in the LNR, participants tended to under-report or not report key daily activities that were not linked to the formal market.

Given the strong prevailing work ethic and desire for upward social mobility, participants in both locations valued employment. A strong theme to emerge from cognitive interviews was the importance of work to individual identity and as a means of survival through providing money for life necessities: “Well work is... if there is no work, how do you eat, how do you drink, how do you buy clothing for your children?” (T, female interviewee, Iquitos); “We should all have an occupation for the survival of the household, to have an income, work is essential for every person, a source of income” (M, male interviewee, Iquitos). Men reported a pressure to be the breadwinner and provide for their family, whereas women were more likely to work informal jobs around their home and family commitments: “When a man goes out of the house we search for daily bread and our family stays here, she waits for us with our food, our refreshments...” (A, male interviewee, LNR).

In rural areas where both partners identify as agricultural labourers, there was a common perception of shared labour and equality of work. However, subtle differences existed: men tended to work longer hours in the field and were more likely to take the produce to market to sell. Women, on the other hand, tended to work shorter hours in the field (often this was based around children’s schooling hours) and spent more time on domestic labour. Despite relatively ‘equal’ working roles in this context, when delving into wages, it seems men were sometimes paid more than women: “Yes my partner is paid, when we search for a shop to sell our goods, my spouse is paid 24 soles (five pounds) and me 15 soles (three pounds), no more” (M, female interviewee, LNR).

Gendered items in ENDES included non-domestic work, occupational identity, employment and wages or salary, as well as an assessment of the vulnerability of employment through questions on seasonality of work and informal labour. Areas not covered by ENDES, but arising from qualitative research, included: retirement, domestic labour (explored further below), multiple jobs or informal employment, and perceived job satisfaction. So, while paid employment was important to overall

constructs of gender equality, it reflects a narrow aspect of a larger and more complex domain of labour (paid, unpaid and domestic).

#### 4.3.3.3 Domestic Duties

ENDES does not directly assess domestic labour, time use, or the burden of unpaid labour. However, domestic labour emerged as an important topic in cognitive interviews. Interview questions about domestic labour probed about the individual share of cleaning, cooking and childcare that men and women undertook, as well as hours of work in the home and household norms and expectations. These questions arose from the actual interview process and were not predefined by ENDES. Questions were well understood with only four participants having minor confusion between “who does the work?” and “what work do you do?”.

Women took on the burden of domestic duties, as one man explained: “I work more in the field than she does. Mothers, during class time, must attend to their children, prepare the food and wash [clothes]. They work [in the field] but not always, because the mother has more work in the home.” (R, male interviewee, LNR). Domestic labour essential to the function of a traditional family unit was mainly performed by women. Overall, this work was undervalued by society and lacked economic recognition, a fact that was subsequently internalised by many women who did not see domestic labour as ‘real work’: “Me? No, only my house, to clean, to cook, and the work in the fields with my spouse” (E, female interviewee, LNR). There was a strong link between *machismo* and chauvinistic male behaviours, where it was seen as the man’s duty to work and the woman’s duty to serve the family. These roles were replicated across generations and shared between women within a family, perpetuating broader societal norms. Shared domestic duties meant that men were able to fulfil valuable parenting roles and women could move beyond the domestic sphere into employment and thus gain financial empowerment: “In the house imagine... washing, cooking, ironing, childcare, everything to be done. The work of a mother never ends, every day she works” (Z, female interviewee, Iquitos). These findings support the need for time-use studies and the inclusion of questions in ENDES to quantify work in both paid and unpaid spheres.

#### 4.3.3.4 Financial Empowerment

Questions around financial empowerment extended beyond traditional employment-based questions into processes around income generation, financial transactions, financial decision-making, earning differentials, and financial security. On the whole, the majority of participants had a good understanding of questions and were open to responding. Some participants with lower levels of literacy were unable to fully quantify their earnings, and, as discussed further in subsequent paragraphs, some ambiguity persisted in discussions about financial decision-making processes.

Financial empowerment was linked to education and employment. In rural communities, there was a shortage of opportunities for income generation outside of traditional small-scale agriculture. In the city, there were high rates of unemployment and job security was of high concern. In these contexts, many perceived that poverty was a more pressing driver of inequality than gender: “Everything is money. If you don’t have money you have nothing” (A, female interviewee, LNR); “There are so many things [money] is important for. When you have an illness or other things.... If you don’t have money, well, if you have money, you help out. Solutions for your problems, if you have problems, if you don’t, you save money like so.” (J, male interviewee, Iquitos) Many women did not earn their own income and were dependent on male partners for financial security; conversely, having one’s own income led to a sense of greater financial security, which could be transmitted to future generations.

ENDES contained indicators of financial empowerment including control over one’s own income, wage discrepancy, control over husband’s earnings and access to credit or a bank account (USAID, 2016). However, it was difficult to conceptualise control over one’s own income during cognitive interviews due to many women living in extreme poverty in situations of subsistence living, where cash flow was limited and any money was spent on necessities rather than on luxury items or savings. Secondly, there was a strong emphasis on partnerships between men and women, and the household was often portrayed as a unit with men and women

fulfilling different and complementary roles (see Chapter 3). Therefore, in decisions around spending, the process of financial decision-making was more difficult to disentangle.

#### 4.3.3.5 Asset Ownership

The questions around house and land ownership were quite straightforward and understood by most participants. Twenty couples did not own their own house, of which five rented and fifteen lived with other family members. Twenty-six couples owned their own house, of which 17 owned their own land too. There were no measurable differences in home and land ownership between women and men in those surveyed.

This may be due to a number of factors. From a legal perspective, various land titling initiatives have led to greater gender equality, from land reform through the 1960s focusing on rural populations and informal urban dwellers, through to land ownership and inheritance rights for women under the Constitution of 1993, the Civil Code, and Peru's primary laws of land and commerce (Nathan Associates Inc. , 2016). Currently, when registering a property, legally married couples are required to name and include their spouses (*ibid.*). From the perspective of social norms, there was a strong underlying heteronormative discourse of the male/female couple being a unit. This was evidenced by language such as “somos iguales” (we are equal) and “ambos somos” (we both/we together) in both Iquitos and the LNR. Further, in river communities where formal legal frameworks were less developed and people had limited access to resources, house and land ownership were conceptualised differently, with a more communal attitude expressed. For example, the community members would build their homes on or farm using communal land. In Iquitos, land ownership was limited, with many living in small concrete apartments.

The importance of home and land ownership has been recognised widely. Beyond providing a base of shelter, security and stability for individuals, it also enables greater bargaining power during, or at the dissolution of a relationship (Fuentes & Wiig, 2009). Cognitive interviews also revealed the importance of home: “Yes for



me it is very important to have your own house, to be able to raise my children. To be an owner, it's yours. Not to live in... I live with my mother-in-law, and yes I want to live more advanced in my own home" (S, LNR); "Because it is mine, my house and no one can enter. In my house I do what I want, sleep when I want..." (D, LNR). In rural communities, land distribution meant members had access to communal land. However, it was reported that women have less say over how this land is used (Deere, 2010).

In ENDES, asset ownership was assessed by quantifying house and land ownership. Based on the results of the cognitive interviews, these questions, when posed to couples, failed to differentiate between genders due to the prevailing legal and social environment (Fuentes & Wiig, 2009). Because of this, indicators relating to asset ownership were not included in the construction of the index going forward.

#### 4.3.3.6 Decision-making

Decision-making was an area that caused difficulties for respondents because of the wording of questions, conceptual challenges, or lack of confidence answering questions. The decision-making process itself was difficult to disentangle from the logistics or outcome. Decision-making was assessed over the domains of household purchases, financial management, healthcare decisions, family visits, and food to cook.

ENDES questions on decision-making reflect individual power balances, spousal communication, and bargaining processes. In general, men tended to assume the head-of-household role and were seen to make many of the larger or financial decisions. However, women were perceived as more in touch with household needs, healthcare, and children.

In both settings, some couples initially described a joint process of decision-making around their limited resources. However, when probed further, male participants described taking the lead, because many perceived themselves as the head of the household: "Here, for example, sometimes many men are closed-minded people, because I am a man I'm going to grab my money and will be in my pocket, then

what am I doing? I'm putting aside my family and I'm not valuing what I have, if I earn money, for sugar or bread or coffee to share, I share everything and then when she goes to make [a household purchase], there's the money, she is safe." (A, male interviewee, LNR) This said, women were seen as being more in touch with household needs: "In food, she decides what we need. In the kitchen, I really don't know. You know, in the kitchen women know more than men" (J, male interviewee, Iquitos). This is driven by and subsequently reinforces traditional gender roles where women are seen as belonging in the domestic domain.

Especially in situations of extreme resource shortage, such as in impoverished rural communities, both partners are relatively equally disempowered financially: "Here, there is no money. So here the two of us [make financial decisions] when we have money, right? In a house who sees what is needed? The two of us, mother and father. To buy clothes for our children, it's money, anything that we lack, like soap, we don't have more than this here." (R&J, partners, LNR) Whilst decisions may be reportedly made more equitably, both partners are in situations of extreme economic disempowerment: this situation reflects equality yet joint disempowerment. Some participants who lived subsistence lifestyles had difficulty in answering hypothetical questions around household purchases because money was so limited: "Lamentably I don't have these things... I don't have any of these household items. Nothing. I don't have the money to make any [of these purchase decisions]. I would love to have a television, equipment, a washing machine, who wouldn't? But no sadly I could never afford them." (YP, female interviewee, LNR)

Power imbalances within a relationship seemed to be driven by money and status, which in turn was a reflection of employment and education. In the situation of a male primary earner, a power differential can be created through unequal financial earnings and life experiences: "So, in my case, I'm the one who distributes [money in the relationship]. I had a problem previously – because this is my second partner – my first partner earned less than I did... The problem for her was that she had not completed secondary education. We searched for work in the market, in a shop selling clothes, from 6am to 6pm every day... but the day never came [where she found a job], she couldn't do anything. From here we had problems in the home and we separated... But it would be good if women are trained in something, to

improve their lives, because here in Iquitos there are many people who comment, speak or act out many problems in their relationships... some things that can distort a relationship..." (G, male interviewee, Iquitos).

#### 4.3.3.7 Age at first marriage and birth

The majority of participants were able to discuss their age around major life events such as marriage and childbirth. Some less literate participants had difficulty quantifying their actual age and/or the time in exact years since key life events. The cognitive interview also probed into perceived maturity and 'readiness' for partnerships and family, as well as their subjective opinion around what constitutes 'too young' to enter into key life decisions such as pregnancy.

Age at first marriage, age at first childbirth, and age of first sexual initiation are potentially quantifiable through ENDES. Perceived maturity for marriage and large age differences between spouses were also important qualitative elements arising from the interviews: "[Early marriage] cut short all I had to do [in life]" (D, female interviewee, Iquitos)

I observed spousal age differences of up to 30 years, with significant impact on intra-relationship power: "I mean, he abused me, I was 16 and he was 37, rougher than me, and abused me in front of my mother. My mother made me separate from him... Now I live better..." (L, female interviewee, Iquitos); "Well, it's too young; sometimes here you see partners who are adolescent, it's too young, but at times it comes to a bad end. The young male thinks "no," and leaves the young woman with two children." (E, male interviewee, LNR).

Participants identified the importance of maturity when entering into life partnerships or children. Many women retrospectively did not feel mature enough and felt their relationship quality and empowerment suffered subsequently: "I feel now I have more knowledge and experience. When I was a girl, my mind was closed, I didn't realise. If I had noticed, I would not have had a husband. Because it is very different living alone and living with a partner, it is very different. Because when you are alone, you don't worry about attending to someone... And when you have

a partner, you'll get up early, serve him, and work with him.” (A, female interviewee, LNR). Furthermore, educational and employment opportunities for women (less so for men) were limited by young marriage and childbirth. These could be linked conceptually to domestic responsibilities and access to and use of contraception.

Participants said that women (and men) initiate sex at a young age, and gave hearsay evidence of girls as young as 11 or 12 years of age becoming pregnant: “I have been pregnant from 14 years of age... I don’t know [what age is too young for pregnancies] because I’ve seen babies [fall pregnant], they are younger and have children” (A, female interviewee, Iquitos). In cognitive interviews there was a consensus that having children before 16-18 years, starting intercourse earlier than 15 years, and getting married before 20-25 years was potentially “too young” for young women and may lead to restricted life opportunities.

#### 4.3.3.8 Contraception Use

Use, knowledge, access and utilisation of family planning are extensively evaluated by ENDES questions. Most cognitive interviewees were able to discuss family planning openly, and questions were consistently well understood. The most cited reason for contraception use was to control family size and limit the financial burden of children on the family: “We use family planning, to not have more children; because now education is expensive. It’s not easy to educate your children” (A, female interviewee, LNR). This echoes macro-economic arguments around the positive economic impact of family planning.

With high rates of extra-marital sex, transactional sex and prostitution, contraceptive use was also an important strategy to decrease STI transmission: “Yes [I would use a condom] because sometimes we don’t have faith in men... for me it is a problem, perhaps I would contract some type of illness.” (C, female interviewee, Iquitos). Thus, exploration of communication and bargaining in condom use between partners is another quantifiable element; this has been assessed in the ENDES as attitudes around hypothetical scenarios and may be translated into an index item.

#### 4.3.3.9 Violence Against Women

I discussed Violence Against Women (VAW) with most participants. Five participants had a fair level of understanding, with some conceptual limitations, and one participant had poor understanding. The majority of participants (n=40) interviewed did not believe that violence was permissible in any situation: “Never. Never is there a justification to hit a woman, everything is talking, nothing more” (Z, female participant, Iquitos). Women were positioned as ‘precious’, reinforcing marianismo constructs: “You shouldn’t [hit]. We as women are like roses, you shouldn’t touch me. Men shouldn’t be bad, hitting us, being violent. We should report and denounce it” (YP, female interviewee, Iquitos). On the whole, if women stated they did not permit violence under one of the circumstances presented to them, then they would answer the same for all circumstances.

There was a disconnect between anti-violence attitudes expressed and personal experiences of violence. VAW is increasingly recognised as a major human rights and gender equality issue in Loreto and the rest of Peru, with rural Peru recording some of the world’s highest lifetime prevalence of VAW (WHO, 2012): “It always happens and you know it, the husbands hitting their women, punching, fighting like this. You always hear it” (E, female participant, LNR).

Many participants also linked issues of alcohol and VAW: “Yes there are problems in homes here, many problems, sometimes the husband will be violent because he is drunk, he drinks and here comes the problem, spending money that should be benefiting his children” (M, female interviewee, LNR). Alcohol use was seen in the broader context of *machismo*, which was identified by participants as a facilitator of VAW: “Many people, most of all men, don’t [share my anti-VAW opinion]. Some are *machistas*, they are here hitting their women” (HP, male interviewee, LNR); “We live in a *machista* society, because they say, “because I am a man I am able to be violent” (LV, female interviewee, Iquitos).

Communication and decision-making, linked to power differentials were positioned as a means through which to overcome violence: “You have to have a conversation

together, because if you don't, it won't be an agreeable relationship. Another thing men shouldn't hit women for fun... Because I lived with my partner for fifteen years and he, I don't know, hit me for ten years" (R, female interviewee, Iquitos); "We know how to communicate ... we don't know how to be violent, my children don't know, they understand that there are others here that are violent, yelling, insulting. Us, no." (E&M, partners, LNR).

#### 4.3.3.10 Healthcare access

For questions pertaining to healthcare access, eight participants demonstrated fair understanding and one demonstrated poor understanding. Some questions required repetition or clarification, and some participants had poor comprehension of the word 'permission' when discussing barriers to healthcare.

Overall, there was a widespread recognition of the importance of health to one's life and social development: "Ma'am, you have to do everything possible [to ensure health]. They say there is SIS [social security] now for health to help us access the health posts, there's healthcare there." (A, female, Iquitos) Despite the recognition of the importance of health, and the individual right to health, there were widely perceived barriers to access, particularly in rural areas: "Yes [there are access problems] with distance, distance is the worst problem if your seriously ill. When I was sick with malaria, I had to go on an emergency trip to Mazan [the local hospital]. The travel is also expensive, when you travel you have to pay a lot [for gasoline]." (D&A, couple, LNR)

Most participants felt there were no clear gender differentials in healthcare access: "Equal, we are equal. As mothers and fathers, we should both have this [the right to healthcare]" (L, female, LNR). Some, especially from the poorer river communities, were more preoccupied with financial barriers to care and did not perceive this to be explicitly gendered. Some also conceptualised illness as acting in an indiscriminate manner: "Here, when God gives us an illness, it doesn't matter if it is a man or woman. A man may be in the deep jungle and be bitten by a snake, and in two or three hours he may be dead [...] It is as it is, as God has given us, both of us, not only in the case of pregnant women." (A, male, LNR)

Despite these perceptions, gendered power imbalances played out both personally and professionally in the health system. For example, a nurse in Iquitos observed that: “I’ve seen this [power imbalance]. If someone is very professional and the other partner works in a lower range of employment, it always burdens them... There are times where treatment of the partner is not good, because the partner is of another superior level. I know doctors whose spouses are nurses and because of this they are treated badly, they [the doctors] think that they’re so superior to their wives, they assume some sort of power over them, no?” (E, female interviewee, Iquitos).

#### 4.3.3.11 Leadership and politics

ENDES, being focused on individual-level data, does not include questions about political representation. However, political representation and community participation are important aspects of many aggregate measures of gender equality. Instead of quantifying political representation itself, participants were asked if they knew any local male or female politicians or community leaders, along with further probing around the perception of male and female leadership styles. A large number of participants (n=16) had only a fair understanding of the questions and a further five participants had poor understanding due to lack of awareness of the political landscape, conceptual difficulties, and misunderstanding of the terms used around leadership.

Despite many participants referring to a growing number of female leaders, it seemed that men still made most of the important decisions. Furthermore, women who were seen as leaders seemed to occupy lower-level positions such as secretarial, administrative, or non-political leadership roles. This often entailed sex-specific leadership in government programmes such as Programa Juntos, where a single female from each community was selected to be the ‘leader of the mothers.’ Men, however, filled more formal political roles and therefore functioned in a direct association with traditional power structures. Interestingly, it emerged that women in positions of leadership were known as ‘lideresas,’ and men in positions

of leadership were known as 'políticos' or 'autoridades.' This lexicon represents the difference in perception between male and female leaders.

Finally, leadership opportunities – regardless of gender – were linked to having a vocation – flowing on from individual employment opportunities – and intelligence – linked to background educational opportunities: "A leader, my idea, is that you have a vocation. You have intelligence so you can continue to advance, whether it is to be a doctor, you can be what you want to be" (MC, female, Iquitos) This demonstrates the interlinked nature of certain personal achievements towards empowerment and the importance of having a good foundation in key areas such as education and employment. Furthermore, female leaders were seen as helping other women through either setting a positive example or acting in support of women's issues.

#### 4.3.3.12 Community participation

At the individual and community levels, the concepts of political participation and leadership represent the emergence of a few individuals as community representatives, or elites. However, the concept of community participation encompasses every individual's ability to act cooperatively and constructively with others in local groups. Of the questions I posed in my interviews, most were well understood. ENDES does not include questions focussing on individual community participation, but I felt this was an important concept to explore.

Some community participation behaviour reinforced gender norms about women belonging primarily to the household and men outside the household. For example, D (female) participated in *Programa Juntos*, a social support programme only for women, and her husband participated in the Association of the Family Fathers, which was only for men. D's (female) activities were more family/domestic focused whereas A's (male) activities were more political and community-focused:

*D: We value health and education in this programme, we talk about health so that the mothers don't forget to go to the health posts with their children and also that their kids go to school every day.*



*A: When the president of the Father's association is not here I am responsible in his place... I'm the coordinator, spokesman, this is our work. At the moment we work in fish farms, cleaning the school, our assemblies, we have quick assemblies, there we share everything from the authorities to the people. (D & A, partners, LNR)*

In rural areas, small, informal agricultural cooperative groups seemed relatively common and very important to local members. One benefit in belonging to these groups may be 'power in numbers:' they allow farmers to aggregate their input/output for greater selling opportunities. The groups may act as a supportive network: "I work in these small groups. These groups, one does our 'minga' as we call it here, you invite various people and we do our work, like this. This is a help, this group, [we share] one field... For example, in one session of work come women and men. [My husband] says to me "I'm going there" and I say "go, don't bother me," it's a real support" (M, female interviewee, LNR).

Beyond attendance at community meetings, the space for decision-making seemed male-dominant: "In neighbourhood meetings, they speak of what we should know, what we will change, a new teacher... those who are the head of the community [make the decisions] ... [they are] all men" (L, female interviewee, Iquitos). This was the same in the LNR.

## 4.4 Decisions about the inclusion of indicators

Based on the results of the cognitive interviews, I made decisions about the appropriateness of each item for the overall women's achievement and gender equality score. This was facilitated by the WAGE Table, first introduced in Chapter 3 (Section 3.3.6 and Table 4).

Using the structure of the WAGE Table (Table 8 below), each ENDES item identified was, by domain, tabulated against exploratory qualitative research and cognitive interview results. This table arranges the research findings by: potential indicators emerging from qualitative interviews (Chapter 3); content of current international, aggregate-level indexes (Chapter 2); ENDES 2015 items (Chapter 4); cognitive interview assessment of items and domains (Chapter 4); and, a decision on possible gender indicators for inclusion in index. This facilitated a structured analysis of what data were available, how it reflected 'real-life' community dynamics around gender equality, and how this could be combined into an overall index.

This table also details the emerging domains of importance: education; labour; family sphere and domestic labour; decision-making; financial empowerment; property, assets and ownership; community participation; leadership and political representation; health; family planning; VAW; age and power; traditional customs; freedom of movement. In each of these domains, I was able to evaluate the importance of the domain, list previously used indicators, assess the validity of the content of the ENDES survey questions, as well as make a decision about indicators to include in the WAGE Score. The selected indicators will be listed in detail in Section 4.4.2 below. Appendix F provides further information on the process.

Through direct comparison of qualitatively-identified gender domains, available ENDES items, and information from the cognitive interviews, I identified areas where data were missing and where more research was needed. Ultimately, I used the qualitative results from the cognitive interviews and the WAGE Table to guide the way each item is selected and utilised in the score construction, which sets up the necessary structure to start the Score construction detailed in Chapter 5.

Table 7: Identification of potential gender indicators through comparison of data from qualitative interviews, items in existing international indexes, available ENDES indicators, and cognitive interviews

DOMAIN	Potential indicators emerging from qualitative interviews	Content of current international, aggregate-level indexes	ENDES 2015 Indicators Area	Questionnaire wording	Cognitive interview assessment of indicator content	Possible gender indicators for inclusion in index
Education	<b>Literacy</b> – for basic transactions <b>Primary education</b> – generally available and accessible for both genders <b>Secondary education</b> – important foundation for employment, school drop-out rates high <b>Tertiary education</b> – high respect and security	<ul style="list-style-type: none"> <li>Adult literacy rates/ratio (GEI, GEIE, GGGI, WEOI)</li> <li>Gender parity index (primary, secondary, tertiary) (GEI, GEIE, GGGI, MDG)</li> <li>Secondary education rates (GII)</li> <li>Attitudes to female education (GEIE)</li> <li>Women's school life expectancy (WEOI)</li> </ul>	School attendance  Educational attainment  Literacy	<i>Have you ever attended school?</i>  <i>What is the highest level of school you attended? Primary, secondary, or higher?</i> <i>Now I would like you to read this sentence to me</i>	<p>Education = overwhelmingly important Many valued educational opportunities for their children and would make significant personal sacrifices to educate their family, because of the perceived future benefits</p> <p>Achievement of education categories has a scaled/stepped value such that:</p> <ul style="list-style-type: none"> <li>- Basic literacy provides key life/household skills,</li> <li>- Primary education enhances one's basic range of life skills,</li> <li>- Secondary education open door to employment opportunities</li> <li>- Tertiary education allows the progression to secure employment and 'professionalism'</li> </ul>	<p>Individual-level achievements, comparison with partner and household across:</p> <ul style="list-style-type: none"> <li>- Literacy</li> <li>- Schooling</li> <li>- Partner schooling</li> </ul> <p><b>N=3</b></p>
Labour	<b>Strong working mentality:</b> work linked to personal identity/pride <b>Gendered labour roles</b> define career intentions and earning potential <b>Work opportunities</b> and employment differ between men and women, often due to burden of family and domestic responsibilities <b>Wage discrepancies</b> <b>Financial empowerment</b> and employment	<ul style="list-style-type: none"> <li>Labour force participation rate/ratio (MDG, GII, GEI, GEIE, GGGI)</li> <li>Income/wage: absolute, gap, control over (WEAI, GEI, GEIE, GGGI, WEOI)</li> <li>Attitudes to employment (GEIE)</li> <li>Females in professional jobs (GGGI, GEIE)</li> <li>Employment discrimination (WEOI)</li> <li>Legal restrictions on job types for women (WEOI)</li> <li>Difference between statutory retirement age between men and women (WEOI)</li> </ul>	Current work  Informal work  Occupation  Vulnerable employment  Seasonal work  Payment and wages	<i>Aside from your own housework, have you done any work in the last seven days?</i> <i>As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. In the last seven days, have you done any of these things or any other work?</i> <i>What is your occupation, that is, what kind of work do you mainly do?</i> <i>Do you do this work for a member of your family, for someone else, or are you self-employed?</i> <i>Do you usually work throughout the year, or do you work seasonally, or only once in a while?</i> <i>Are you paid in cash or kind for this work or are you not paid at all?</i>	<p>Work = sacrifice Strong work ethics/mentality – work is dignity &amp; honour Personal identity linked to work especially in rural/agricultural settings where work consumes life Employment is central to survival Employment central to financial &amp; household security Informal, temporary work more common in women – more flexibility for home duties yet less empowerment Complementarity between partners in agricultural work Disempowerment driven by poverty More women than men unemployed or unpaid Men have more pressure to be breadwinners for family 'Good' employment linked to solid educational base</p>	<p>Individual employment and differences with partner and household</p> <p>Vulnerability of employment: seasonality, informal work</p> <p>Payment for work: unpaid, in-kind, money</p> <p>Wage difference between partners</p> <p><b>N=4</b></p>
Family sphere and domestic labour *	<b>Importance of family unit</b> to Peruvian culture	<ul style="list-style-type: none"> <li>Time use (WEAI)</li> <li>Discriminatory family code:</li> <li>Legal age at marriage (SIGI)</li> <li>Early marriage (SIGI)</li> </ul>			<p>More women than men perform burden of domestic work No men are majority providers of domestic duties.</p>	<p>There is a need for inclusion of time use studies and/or assessment of burden of domestic</p>

	<p><b>Burden of domestic labour</b> falling on women/girls</p> <p><b>Domestic labour not economically valued</b></p>	<ul style="list-style-type: none"> <li>• Parental authority (SIGI)</li> <li>• Son bias:</li> <li>• Missing women (SIGI)</li> <li>• Fertility preferences (SIGI)</li> <li>• Childcare services (WEOI)</li> <li>• Maternity and paternity leave and provision (WEOI)</li> </ul>			<ul style="list-style-type: none"> <li>- Domestic work = burden to women but not valued (by her or society). Although domestic work is a necessity - not valued as a "means to get ahead" like paid work</li> <li>- Housework = investment in wellbeing of children, ie next generation's betterment</li> <li>- Women take on double burden of work</li> <li>- Expectations, roles and stereotypes transmitted via the family. Machismo.</li> <li>- Strong woman and opinions important for setting a role model and expectations.</li> <li>- RIVEREÑOS perform same pattern of work, traditionally delineated roles but seen as "working together" for sake of family, community</li> <li>- Link between machismo and male behavioural roles in the domestic sphere, men perform less domestic duties</li> <li>- Traditional gender roles are assumed until there is a necessity - in this case the male will step in and 'help out'</li> </ul>	<p>labour – not available in ENDES</p> <p>Burden of domestic duties needs evaluation – not available in ENDES</p> <p>Small proportion of overall dataset discuss child discipline</p> <p><b>N=0</b></p>
Decision-making	<p><b>Head of household</b> – structure of decision process</p> <p><b>Decision making processes</b> between couples – who, where, what and how?</p> <p><b>Communication</b> and household decisions</p> <p><b>Decisions in context of resource shortage</b> – locally relevant decisions and purchases</p> <p><b>Healthcare decision making</b></p>	<ul style="list-style-type: none"> <li>• Access to and decisions on credit (WEAI)</li> <li>• Input in productive decisions (WEAI)</li> <li>• Autonomy in production (WEAI)</li> </ul>	<p>Healthcare decision making</p> <p>Household purchasing</p> <p>Smaller household items</p> <p>Cooking</p> <p>Family visiting</p>	<p><i>Who usually makes decisions about health care for yourself?</i></p> <p><i>Who usually makes decisions about making major household purchases?</i></p> <p><i>Who usually makes decisions about making smaller daily household purchases?</i></p> <p><i>Who usually makes decisions about the type of food to cook?</i></p> <p><i>Who usually makes decisions about visits to your family or relatives?</i></p>	<p>Male decision-making dominant in financial decisions</p> <p>Decision-making influenced by living single or in a partnership. 'Single' seemed more empowering to women &gt; men</p> <p>Gender roles replicated in decision making process</p> <p>Dominance in decision-making reflects age/education diff.</p> <p>Lack of economic empowerment with age (no economic activity)</p> <p><u>In household purchases:</u></p> <ul style="list-style-type: none"> <li>- Despite joint/male decision process, women do hard work of actually buying the goods</li> <li>- Women perceived as 'knowing' house needs</li> <li>- Men seen as head of house</li> </ul> <p><u>In healthcare:</u></p> <ul style="list-style-type: none"> <li>- Women associated providing healthcare for family/ children</li> <li>- Men with education often act as health 'interpreter' for spouse</li> </ul> <p><u>In financial management:</u></p> <ul style="list-style-type: none"> <li>- Single women have greater decision-making power</li> <li>- Educated women report more power in financial decisions</li> <li>- Poverty limits decision making, drift to joint decisions out of necessity</li> <li>- Male breadwinners will often have more financial decision making power</li> </ul>	<p>Decision making in partnerships reflects a process of negotiation and power differentials in a relationship, and thus is a strong reflection of gender dynamics.</p> <p>Indicators items include:</p> <ul style="list-style-type: none"> <li>- Household head</li> <li>- Main decision-maker, husband's money</li> <li>- Main decision-maker, large purchases</li> <li>- Main decision-maker, small purchases</li> <li>- Main decision-maker, food</li> <li>- Main decision-maker, visits</li> <li>- Healthcare decisions between partners</li> </ul> <p><b>N=7</b></p>

Financial empowerment	<p><b>Financial empowerment</b> closely linked to safe employment</p> <p><b>Control over own earnings</b></p> <p><b>Access to credit or bank accounts</b> - limited</p>	<ul style="list-style-type: none"> <li>• Economic rights rating (GEIE)</li> <li>• Inheritance (SIGI)</li> <li>• Access to land (SIGI)</li> <li>• Access to credit (SIGI)</li> <li>• Access to property (SIGI)</li> <li>• Control over income (WEAI)</li> <li>• Access to credit or finance (WEAI)</li> </ul>	<p>Financial decision making</p> <p>Wage disparity</p> <p>Financial empowerment</p>	<p><i>Who usually decides how the money you earn will be used: you, your (husband/partner), or you and your (husband/partner) jointly?</i></p> <p><i>Would you say that the money that you earn is more than what your (husband/partner) earns, less than what he earns, or about the same?</i></p> <p><i>Who usually decides how your (husband's/partner's) earnings will be used: you, your (husband/partner), or you and your (husband/partner) jointly?</i></p>	<p>Earning linked to previous education</p> <p>Extreme resource shortage and poverty leads to equal levels of disempowerment</p> <p>Virtually no one in either context had access to credit or bank account – credits were sourced informally and savings were not secured in bank accounts</p> <p>Unpaid domestic labour restricts ability to participate in paid work</p> <p>Perception of joint decision – often male-dominated</p> <p>High level of financial dependence by women on men</p> <p>Empowerment from own earnings, higher education</p> <p>Majority of family earnings towards children/family needs</p> <p>Importance of social security systems for healthcare</p> <p>Power differentials driven by educational/ employment differentials</p> <p>Two overlapping disempowering influences – poverty and gender</p>	<p>Financial decisions</p> <p>Control over income</p> <p>Individual knowledge/use of credit and financial support</p> <p>There is no discriminatory value of including questions on access to credit or bank accounts because of almost total lack of either in both study contexts.</p> <p>- Main decision-maker, spending <b>N=1</b></p>
Property, assets and ownership	-	<ul style="list-style-type: none"> <li>• Property ownership rights (WEOI)</li> <li>• Mobile phone subscriptions (WEOI)</li> <li>• Ownership of assets (WEAI)</li> <li>• Purchase, sale or transfer of assets (WEAI)</li> <li>• Access to and decisions on credit (WEAI)</li> </ul>	<p>Home ownership</p> <p>Land ownership</p>	<p><i>Do you own this or any other house either alone or jointly with someone else?</i></p> <p><i>Do you own any land either alone or jointly with someone else?</i></p>	<p>Importance of home ownership – security and stability</p> <p>Inheritance, ownership and business laws driving equality between spouses</p> <p>However, property laws in Peruvian culture promote equality of asset ownership – thus, this is not able to be used as a discriminatory item</p>	<p>Whilst ownership of land, house, or other assets may demonstrate individual economic empowerment or wealth, these values have no value in discriminating between genders <b>N=0</b></p>
Community participation *	<p><b>Community groups</b> – presence of groups and support network</p> <p><b>Community meetings</b> – participation and decision making at community level</p> <p><b>Voice and power</b> – men and women, roles and power</p>	<ul style="list-style-type: none"> <li>• Group membership (WEAI)</li> <li>• Speaking in public (WEAI)</li> </ul>			<p>Group membership and participation</p> <p>Community meetings and participation</p> <p>Local community groups include APAFA, Juntos, Vaso de Leche</p> <p>Sporting teams</p> <p>Labour/agricultural cooperative participation</p> <p>Informal networks of support</p> <p>Roles and leadership structure within community groups</p>	<p>Potential indicators needing collection (not currently available in ENDES):</p> <ul style="list-style-type: none"> <li>- Membership of community group</li> <li>- Participation in community group</li> <li>- Leadership of community group</li> <li>- Community-level decision making</li> </ul> <p>Not available in ENDES <b>N=0</b></p>

Leadership and political representation <sup>Λ</sup>	<p><b>Local political structure</b> – balance of men and women</p> <p><b>Leadership opportunities</b> – for personal empowerment and leadership of others</p> <p><b>Perception of equality in leadership</b></p>	<ul style="list-style-type: none"> <li>Proportion women in national parliament (GGGI)</li> <li>Female head of state over 50 years (GGGI)</li> <li>Attitudes to female politicians (GEIE)</li> <li>Percentage of female legislators, managers, senior officials (GEIE)</li> <li>Technical employment and managerial roles (GEI)</li> </ul>			<p>- Machismo impacts upon the balance of male and female political representation.</p> <p>- Change in political/leadership landscapes which has seen an entry of women into positions of power and public presence.</p> <p>- Women tended to have local roles pre-defined by specific government programmes such as <i>Programma Juntos</i>, whereas men tended to fulfil more formal “community head” and political representative roles.</p> <p>- Leaders are held in high respect but some pessimism by a few</p> <p>- Women are perceived as being more trustworthy and hardworking as leaders, being influenced by their typical gender roles such as in the domestic sphere</p> <p>- Men fill more leadership and political positions than women still</p> <p>- In local and regional levels, a quota system is in place ensuring &gt;30% women candidates are put forward for each election</p>	<p>Knowledge of local political leaders</p> <p>Gender share of local politicians</p> <p>Perception of equality in community leadership structures</p> <p>Not available in ENDES</p> <p><b>N=0</b></p>
Health	<p><b>Healthcare decisions</b> – empowerment and communication around healthcare</p> <p><b>Access to healthcare</b> – gender, structural</p> <p><b>Health outcomes</b> – reflection of gendered inequalities</p>	<ul style="list-style-type: none"> <li>MMR (GII, SIGI)</li> <li>AFR (GII, WEOI)</li> <li>Female to male mortality rate ratio (GEIE)</li> <li>HIV (SIGI)</li> </ul>	<p>Barriers to health access</p> <p>Healthcare access</p> <p>Health insurance</p>	<p><i>When you are sick and want to get medical advice or treatment, is each of the following a big problem or not?</i></p> <p><i>Getting permission to go to the doctor?</i></p> <p><i>Getting money needed for treatment?</i></p> <p><i>The distance to the health facility?</i></p> <p><i>Not wanting to go alone?</i></p> <p><i>In the last 12 months, have you visited a health facility for care for yourself?</i></p>	<p>Health empowerment conceptualised as un-gendered by many, but my personal observations and some qualitative interviews highlighted the gender dimensions of health access and empowerment</p> <p>B</p>	<p>Access to healthcare important:</p> <ul style="list-style-type: none"> <li>Health insurance and attendance at clinic</li> <li>Access to healthcare</li> <li>Knows where to go</li> <li>Getting permission to go</li> <li>Getting money to go</li> <li>Not wanting to go alone</li> <li>No female health staff</li> </ul> <p><b>N = 7</b></p>
Family planning	<p><b>Access to family planning</b> – barriers to access and use</p> <p><b>Knowledge and education</b> – empowerment to use</p> <p><b>Use of family planning</b> – modern FP method</p> <p><b>Communication in partnerships</b> around contraceptive options</p>	<ul style="list-style-type: none"> <li>Fertility preferences (SIGI)</li> </ul>	<p>Contraception use</p> <p>Modern contraception use</p> <p>Unmet need</p> <p>Contraception decision making</p> <p>Sexual health</p>	<p><i>Are you currently doing something or using any method to delay or avoid getting pregnant?</i></p> <p><i>Which method are you using?</i></p> <p><i>Would you like to have (a/another) child, or would you prefer not to have any (more) children?</i></p> <p><i>Would you say that using contraception is mainly your decision, mainly your partner's decision, or did you both decide together?</i></p> <p><i>If a wife knows her husband has a disease that she can get during sex, is she justified in asking that they use a condom when they have sex?</i></p>	<p>- Family planning important to control family size and therefore life financial burden on the family</p> <p>- STD prevention and condom usage</p> <p>- Lack of faith in partner's fidelity</p> <p>- The importance of family planning and smaller family size would be apparent in reducing maternal and childhood mortality and also delaying pregnancy until an older age.</p> <p>- Some women describe the pressure to have sex from her husband and how the responsibility was on her to avoid pregnancy - it was like she had to be hyper vigilant</p> <p>- Links between religion and parental behaviours affecting her use and approach to contraception</p>	<p>There is a need for inclusion of contraception use and family planning preferences in international indexes</p> <p>ENDES data:</p> <ul style="list-style-type: none"> <li>Unmet need for contraception</li> <li>Contraception decision making</li> </ul> <p><b>N=2</b></p>

VAW	<b>Prevalence of VAW</b> – personal or community-level <b>Attitudes to VAW</b> – permissive cultural context <b>Programmes and prevention</b> of VAW	<ul style="list-style-type: none"> <li>Rate of VAW (SIGI)</li> </ul>	Negotiation of sex 1	<i>Is a wife justified in refusing to have sex with her husband when she knows he has sex with other women?</i>		
			Negotiation of sex 2	<i>Can you say no to your (husband/partner) if you do not want to have sexual intercourse?</i>		
			Negotiation condom use	<i>Could you ask your (husband/partner) to use a condom if you wanted him to?</i>		
			Attitudes towards wife-beating	<i>In your opinion, is a husband justified in hitting or beating his wife in the following situations: If she goes out without telling him? If she neglects the children? If she argues with him? If she refuses to have sex with him? If she burns the food?</i>	- Familial transmission of violent behaviour - Communication between spouses was also positioned as a means by which to overcome violence - On the whole, many people recognised that violence was a problem. Some were resigned to the fact that it existed despite being anti-VAW - Importance of intra-household norms and role models in promoting anti-violent behaviours - Beyond communication, education around human rights and use of human rights concepts and language are a means to protect and prevent VAW - Problem of under-reporting and not denouncing violence - Machismo/marianismo and the promulgation of violence	Individual attitudes to VAW - Wife beating justified in 5 scenarios  Individual experience of VAW - Control issues - Emotional violence - Less severe physical - More severe physical - Sexual violence <b>N=6</b>
Age and power	<b>Marriage &lt; 20 yrs, or initiation of sexual activity &lt;15 yrs of age</b> reflects sub-optimal life maturity and impact on life opportunities <b>Age differentials</b> in a partnership, men are older & women younger		Age at first co-habitation	<i>In what month and year did you start living with your (husband/partner)?</i>	- Importance of maturity in age at first marriage for women – power, relationship dynamics etc.	ENDES data:
			Age at first birth and parity**	<i>Now I would like to ask about all the births you have had during your life. Have you ever given birth?</i>	- Education and employment opportunities limited by early marriage and/or childbirth	- Age of first intercourse
			Age of first sexual activity	<i>How old were you when you had sexual intercourse for the first time?</i>	- Love and communication essential in partnerships	- Age of first cohabitation
					- Age/employment/ education differentials may drive power differentials in relationship	- Age differences between partners
Traditional customs	-	<ul style="list-style-type: none"> <li>Attitude to existence of traditional customs (GEIE)</li> <li>Rate of FGM (SIGI)</li> </ul>			-	Not explored in this cultural context
Freedom of movement	-	<ul style="list-style-type: none"> <li>Access to public space (SIGI)</li> <li>Freedom of movement (WEOI)</li> </ul>			-	Decision on family visiting Travel to healthcare

\*

*Data not available for this indicator in the Peru ENDES*

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*Data required from external local information source*

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*Indicator on birth not included because not every woman interviewed in selected ENDES data had given birth to a child*





#### 4.4.1 Arranging indicators into thresholds of women's achievement and gender equality

In addition to selecting indicators that captured the twelve gender-related domains (first introduced in Table 4 and described in more depth in Table 7), I arranged ENDES indicators to recognise both *women's achievement* and *gender equality*.

In Chapter 3 (Figure 7), I introduced a basic conceptual framework derived from the socioecological model, to bring together two separate but inter-related constructs of achievement and equality. Women's achievements represent certain stand-alone or 'absolute' achievements as an individual, separate to experiences of *equality*. *Gender equality* may be due to differences in achievement, such as the difference in education levels, or differences in processes, such as decision-making, between a woman and her male partner.

Therefore, achievement and equality can be measured in relation to:

- a) An individual woman's achievement in relation to other women
- b) Her performance in relation to her male partner.

This conceptualisation will be used to arrange the selected indicators, which are detailed in Section 4.4.3 below.

#### 4.4.2 Decision on scoring indicators

In the lead up to Chapter 5, where each item will be transformed prior to ENDES Score construction, it was important to consider how each item would contribute towards a women's achievement and gender equality score. In Section 3.5.4, I noted how areas of women's achievements and gender equality could be arranged into levels of actualisation, where self-realisation occurs in a stepwise manner. For example, different tiers of education lead to different life opportunities; lower levels of education were seen to cut-short certain life aspirations and personal development. In the ENDES, most of the selected indicators were either binary or categorical (see Table 6, above). This meant that data were already available in

some step-wise form that could be used to stage incremental life achievements and gender equality.

From the above analysis, it was difficult to determine if or how one domain or area was more important than others. Education and employment were held in high regard, but these were also intimately linked to other areas of achievement and equality, such as contraception use or leadership. So no one area will be privileged going forwards. Instead the contribution of all indicators will be equalised by standardising each indicator. The process of standardisation will be described in Section 5.3.1. This means that those who achieve in all areas will naturally accumulate more, and those who don't, will accumulate less. And, through this strategy, the differences in achievements and equality can emerge.

Further, when it comes to scoring gender equality variables, evidence I collected from fieldwork described above suggested that most men, women and couples have a strong predisposition towards equality, and 'doing things together' with one's partner. This may mean that traditionally male areas like financial decision-making require greater female input; and that traditionally female areas like cooking may benefit from more male input. Therefore, in areas of decision making and process, each indicator will be scored in a standard way that demonstrates female disadvantage, equality, or male disadvantage. This will be described further in Section 5.3.2 and Table 12 in Chapter 5.

#### 4.4.3 Provisional list of gender indicators

Comparing the list of 43 potential items initially extracted and presented in Table 7 above to the cognitive interview findings, the list was refined to a total of 40 possible indicators. Due to lack of information available, or lack of discriminatory ability of the indicator, three indicators were dropped: home and land ownership, caregiving, and domestic paid labour.

The remaining items were organised according to the concepts of women's achievement and gender equality, as described in Chapter 3 (Figure 7) above. Some items reflected individual achievements in areas such as education, employment,

and health. These were 'stand-alone' items which were able to reflect an individual's performance without a reference male comparison, and were categorised as *individual achievements*. However, some items reflected a process of relative performance or process, for example decision-making with a partner. These were categorised as relating to *gender equality*.

Twenty-five items over six domains represented *individual achievement*:

Education

1. Educational attainment (categorical; highest level of schooling achieved)
2. Literacy (categorical; illiterate, partially literate, literate)

Employment/financial

3. Currently working (binary yes/no response)
4. Vulnerable employment (categorical; not working, vulnerable employment, non-vulnerable employment. Vulnerable employment is defined as the *sum of employment status groups of own- account workers and contributing family workers* (UN DESA, 2007))
5. Wages for work (categorical; not working, unpaid, paid in-kind, mixture, or with cash)

Health empowerment

6. Knows where to go to get healthcare (binary)
7. Getting permission to go to healthcare (binary)
8. Getting money to for healthcare (binary)
9. Distance to health facility (binary)
10. Transport to health facility (binary)
11. Not wanting to go alone to health facility (binary)
12. No female health providers (binary)
13. No healthcare providers (binary)
14. No drugs available (binary)

Health access and family planning

15. Unmet need for family planning (binary; defined as the percentage of women who do not want to become pregnant but are not using contraception)
16. Access to condom if necessary (binary)

17. Visit to health facility in last 12 months (binary)

18. Coverage by health insurance (binary)

Age and relationships<sup>10</sup>

19. Age at first marriage (binary, <20 years cut-off)

20. Age at first intercourse (binary, <15 years cut-off)

Permissive attitudes to wife beating

21. If she goes out without telling him

22. If she neglects the children

23. If she argues with him

24. If she refuses sex

25. If she burns the food

A total of 15 items over three domains represented *gender equality*:

Partner differences

1. Difference in educational attainment (categorical; difference in highest level of schooling achieved between individual woman and her partner)
2. Difference in vulnerable employment (categorical; the difference in vulnerable employment status between individual woman and her partner)
3. Age difference between partners (cut-off > 10 year's age difference)

Decision-making

4. Decision making, contraception use (categorical; partner, joint, self)
5. Decision making, healthcare (categorical; partner, joint, self)
6. Decision making, what to do with husband's money (categorical; partner, joint, self)
7. Decision making, large household purchases (categorical; partner, joint, self)
8. Decision making, small household purchases (categorical; partner, joint, self)
9. Decision making, visits to family (categorical; partner, joint, self)
10. Decision making, food to cook (categorical; partner, joint, self)

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<sup>10</sup> Age of first birth not included because not all included ENDES survey participants had children

#### Violence against women

11. Control issues identified with partner (ordinal)
12. Experience of emotional violence with partner (binary)
13. Experience of minor physical violence with partner (binary)
14. Experience of major physical violence with partner (binary)
15. Experience of sexual violence with partner (binary)

## 4.5 Discussion

### 4.5.1 Summary of indicators

The cognitive interviews facilitated a structured comparison between gender domains, available ENDES indicators, and the relevance of indicators to interview participants' daily lives. As detailed in Table 7 above – and developed over the course of this thesis - domains that guided the extraction and organisation of ENDES items included: education, employment, domestic duties, financial empowerment, asset ownership, household decision-making, age at first marriage and birth, health, contraception use, VAW, political representation, and community group participation.

Current international gender metrics recognise that education and employment are critical elements of gender equality. Data from the field indicate that education, especially at secondary level and above, is instrumental in achieving life goals and “getting ahead.” Formal employment opportunities are linked to a solid education base and serve to further individual financial and personal empowerment. Indicators reflecting employment available from ENDES included non-domestic labour, vulnerable employment and wages. As opposed to outcome-based indicators, decision-making at a household level was seen as a complex process that involves negotiation, communication, and participation. This area of measurement has been included in ENDES through questions on daily household choices. Although there was a strong discourse around equality and joint decision-making in both settings, it was often the case that there was a male advantage. As such, these questions did not fully capture the complexities of the process but were an adequate indicator of more pronounced inequalities. Interview data indicate the impact of adolescent pregnancies on limiting women's life opportunities and the importance of sexual and reproductive healthcare. Beyond access to general healthcare, access to and empowerment around family planning emerged as an important focus from cognitive interview data. As well as controlling reproductive functions and family size, contraception was seen as instrumental in protecting against STIs. Finally, large volumes of interview data reflected the significance of

VAW, its impact on the family unit, and how VAW was linked to gender roles and behaviours.

Through direct comparison of qualitatively-identified gender domains, available ENDES items, and information from the cognitive interviews, I was able to identify incongruous areas where data was missing or where more research is needed. Whilst the majority of existing aggregate indexes acknowledge employment as a key element of gender equality, few recognise domestic and family-related activities. However, this was a critical area where gender norms, stereotypes and expectations play out in the creation and fulfilment of household roles. On the one hand, *machismo/marianismo* cultural stereotypes were replicated internally in the family and across generations. On the other hand, it seemed that having women who are strong role models can break these stereotype. In spite of relatively low recognition in current gender indexes and a general under-valuing of domestic labour, domestic labour emerged as an important area that needs improved measurement.

I identified two domains integral to women's achievements and gender equality, but where ENDES lacked data: community participation and leadership. At the individual level, as opposed to national level political indicators detailed by existing gender indexes (Chapter 2), the concept of leadership was conceptualised differently. For example, there were formal and informal community leadership roles, participation in informal labour cooperatives and community groups, and a strong sense of community and leadership through communal meetings and forums, noted in Iquitos and the LNR. This meant that, although community participation and leadership were initially two distinct domains, at the individual level there was significant overlap between them. Despite the importance of these domains as expressed by interviewees, indicators of these were not available in ENDES 2015. This points to the need for strategies to identify and use local-level data, and to collect individual-level data on leadership and community participation via survey programmes such as ENDES. There is also a challenge in the translation of key concepts of group-level measures of empowerment, such as political empowerment and community participation, to the individual level. These concepts do need to be thought through in greater nuance – how can gender

achievement or equality in community participation or leadership be represented by individual-level data? Suggestions arising from cognitive interviews include strategies to explore if individuals identify as a 'leader' of sorts, how active they are in the community, and whether they fulfil formal leadership roles.

#### 4.5.2 The cognitive interviews: strengths and limitations

The cognitive interview process provided a method to link existing ENDES item questions to qualitative information in the exploration of the measurement of gender inequalities. Beyond quantifiable responses to the initial questions, the cognitive interview data revealed local perceptions of woman's achievements and gender equality in more nuance, and some insight into how to quantify it.

Overall, there was a relatively strong understanding of the questions in the education, employment, age differences, and family planning domains. There was a lower level of understanding in the domains of decision-making, healthcare access, political representation and community participation. The domains that were more sensitive or difficult to discuss in public included violence and sexual health, but were generally well received.

Despite identifying key challenges and areas for further development, the cognitive interview process was limited in certain ways, through suboptimal understanding of the questions posed, limited conceptual discussions due to time or environmental factors, and inconsistencies between perception of equality and categories of results. Although some participants understood the initial question and would respond on a categorical level, they had difficulty engaging in deeper discussions around the probing questions. This may be explained by the environment in which we chose to undertake these interviews. Because we recruited through local health services, and were fitting these interviews around a moment of peoples' lives that can be high stress (seeing a doctor) or distracting (waiting for an appointment or minding children whilst waiting), some participants did not necessarily engage at a deeper level with us. Although some women and men were able to discuss their lives and opinions in depth, a small number of women said they felt unable to discuss these concepts, or embarrassed in doing so.



Overall, however, the majority of participants provided very positive and constructive feedback. Finally, some participants would identify what I perceived as strong inequalities in their lives, yet paradoxically be of the perception that the inequality did not exist. This finding may be explained by the phenomenon of adaptive preferences, whereby people emphasise perceived equality with their spouses and minimise differences, as a strategy to navigate internalised limitations around their lives (Greenstein, 1996).

#### 4.5.3 Challenges in moving from concept to measurement

I used a three-stage approach to move from the conceptual foundation established in Chapter 3 to empirical measures of gender achievement and equality. First I identified existing data in ENDES. Second, I selected gender items. Finally, I assessed the content and construct validity of these items. The translation of gender concepts to concrete measurements is, however, challenging. I encountered several challenges to this process, including: tensions between local knowledge and global norms, aligning concepts to measurable indicators by defining and selecting items that matched the domains and concepts; and, some available items not reflecting the depth of qualitative constructs. I discuss these challenges in more detail below.

Local, qualitative research detailed in Chapter 3 helped identify gender domains, aided the selection of appropriate items from ENDES to reflect them, and facilitated the evaluation of items within these domains. This strategy is different to previous attempts at gender index construction detailed in Chapter 2, which, with a few exceptions, tend to use normative or value-based judgements to guide their approach. These differences can in part be explained by the circumstances in which each of these indicators were developed and the purpose behind each index. Despite the heterogeneity of methodologies in current indexes, international compound measures of gender tended to use indicators that were globally available to enhance the international relevance and comparability of each measure. In contrast, an approach that takes a local standpoint, allowing local concepts of gender equality to emerge from qualitative research, may help

overcome any top-down assumptions that are made in normative- or value-driven approaches.

These contrasting approaches speak to certain well-recognised conceptual tensions in the field of gender, empowerment and development metrics, including between universalist or context-specific measures, choosing intrinsic or extrinsic definitions, and relying on subjective versus objective assessments of individual and group dynamics. It has been argued that, when moving from the conceptualisation of gender to its measurement, especially in the international arena, certain standards must exist to harmonise approaches across contexts, recognising universal elements of gender subordination and ensuring measures reflect appropriate international conventions (Malhotra, et al., 2002; Nussbaum, 2000). This does not negate the need for localised research which contextualises the nature of gender achievements or inequities; instead, it reinforces it. There is an overwhelming consensus about the importance of understanding the social, cultural and political context to develop a meaningful understanding of the role of gender in development (Malhotra, et al., 2002). Despite this, many previous attempts have not employed qualitative strategies such as cognitive interviewing to better understand local contexts to marry these with more global perspectives.

Ibrahim and Alkire argue that empowerment has objective and subjective dimensions (2007). Both intrinsic perceptions and values must be explored and balanced against extrinsic and communal phenomena, which can be difficult to navigate. A challenge confronting scholars when measuring empowerment (in this case, women's achievements and gender equality) is the difficulty in assessing individual perceptions of choice and thus determining, from an intrinsic perspective, what is an acceptable life aspiration or achievement (Malhotra, et al., 2002). Bourdieu introduced and Kabeer expanded upon the idea of the "doxa," which refers to "...aspects of tradition or cultural that are so taken for granted they become naturalised" (Kabeer, 2001). In regards to women's subordination, internalisation of their own inferior status and an acquiescence to the status quo of unequal gender norms has been recognised as a challenge to truly understanding and quantifying gender empowerment (Malhotra, et al., 2002). On the flipside, some aspects of women's achievement and gender equality are inherently

individual and context-specific that they must be recognised as such to avoid being overly top-down or undermining the whole purpose of measurement (Alkire, et al., 2013). The challenge of ‘adaptive preferences’ (ibid.), shifting individual aspirations and invisibly restricting life choices, is something that I considered when deciding on what constituted an ‘optimal’ level of individual achievement or equality, as discussed in more depth in Chapter 5.

There is a well-established feminist argument that challenges the dominance of neoliberal discourses in the quantification of gender and development achievements, which tends to focus on the public sphere and overlook the private (Folbre, 2006; Thomson, 2009). Although this has traditionally been positioned as something that would disadvantage women and under-value their domestic contributions, this argument has not been extended using a gender transformative lens to address how this narrow conceptualisation could be detrimental to men *as well as* women. In Loreto, I observed a distinct division in gender roles where men occupied more visible, public roles (work, sport and leadership) and women tended to occupy more private roles (family, house, motherhood). Despite the privileged position of the family unit in Peruvian society, men’s roles as a parent, caregiver or nurturer were under-developed. This narrow conceptualisation of life achievements pertaining to men (as well as women) which focus on socioeconomic status and play into the role of the man as a ‘breadwinner’ or ‘provider’ may, in fact, lead to more toxic forms of masculinities and *machismo*, and occur at the expense of developing their role in the private sphere. Although subtle, I observed some minor shifts in men’s roles and attitudes around domestic roles and child rearing during these interviews. This reinforces the need for shifting our frame of reference when measuring gender achievements to include the domestic sphere, not simply from the perspective of female recognition, but also to reinforce the value of this part of life to men.

## 4.6 Conclusion

In the preparation for the construction of a women's achievement and gender equality score, which will be detailed in Chapters 5 and 6, this Chapter has identified indicators from the ENDES survey which reflect domains of women's achievement and gender equality. Cognitive interviews facilitated the evaluation of the validity of indicators and domains. Qualitative research guided the identification and selection of gender indicators, by matching locally-identified domains with available gender-related indicators from the 2015 Peruvian ENDES. A total of 40 items over twelve domains were originally selected and were refined into two interrelated areas of enquiry: the first being that of *achievement* and the second being *equality*. Although moving from a conceptual foundation to empirical measures of gender achievement and equality is challenging, the use of cognitive interviews has been a strategy to link the local to the global, and the theory to the practical. In Chapter 5 I begin to construct the WAGE Score, starting with an evaluation of the weighting and aggregation of indicators.

# CHAPTER 5: WOMEN'S ACHIEVEMENT AND GENDER EQUALITY SCORE CONSTRUCTION

## 5.1 Introduction

There is consensus that women's achievements and gender equality are inherently multidimensional (Carmines & Woods, 2004; Hawken & Munck, 2013; OECD, 2008). They cannot be measured directly, but are manifest in a range of social processes and outcomes. Therefore, the evaluation of women's achievement and gender equality requires an approach that is able to deal with multiple indicators that relate to the overarching phenomenon. Multidimensional scores are an approach to synthesising numerous measurable indicators of gender into a single value that reflects an underlying notion of gender achievement or equality (Carmines & Woods, 2004).

I divided the construction of a multi-dimensional indicator of women's achievement and gender equality into three stages as described in Chapter 1: conceptualisation; indicator selection and validation; and indicator aggregation (Hawken & Munck, 2013; Mokkink, et al., 2010; Mueller, 2004; OECD, 2008). These stages guided the construction of the Women's Achievement and Gender Equality (WAGE) Score for Peru, with stage one - *conceptualisation* - discussed in Chapter 3, and stage two - *item selection and validation* - detailed in Chapter 4. This chapter addresses the final stage, *item aggregation*, and explores how data can be organised first into domains, then into two scores each representing *achievement* and *equality* respectively. Finally, the chapter considers how these two measures might be combined into a single overall women's achievement and gender equality score.

There is no consensus about the optimal strategy for item weighting and aggregation when constructing a gender index. Indexes such as the Women's Equality in Agriculture Index use an equal-weight approach: all items contribute equally to their domain, and all domains contribute equally to the overall score (Feed the Future, 2014). The Gender Equality Index takes an 'average of averages'

approach to data aggregation across items and domains (Social Watch, 2010). In these indexes, equal weighting is seen as an ‘agnostic’ standpoint (Decancq & Lugo, 2012; Greco, 2013), but such approaches to indicator aggregation have been criticised as lacking explicit value judgements (Greco, 2013), and are considered convenient but ‘wrong’ (Chowdhury & Squire, 2006). More recently, data-driven approaches to weight items and group items by domain have been employed in indexes such as the Social Institutions and Gender Index (SIGI) (OECD Development Centre, 2012), the Survey-based Women’s emPowERment index (SWPER) (Ewerling, et al., 2017), and the Women’s Economic Opportunities Index (WEOI) (Economist Intelligence Unit, 2012) (Chapter 2). The importance of qualitative research to identify gendered phenomena and indicators has recently been recognised (Alkire, et al., 2013; Greco, 2013) and used in the design of specific survey instruments such as the Gender Equitable Men Scale (GEMS) (Nanda, 2011; Singh, et al., 2013), but, as of yet, is not widely used in the field of international gender index construction.

This chapter addresses the challenges of item weighting and aggregation, integrating qualitative insights with a data-driven approach to index construction. The aim of this Chapter is to construct a Women’s Achievement and Gender Equality Score using ENDES 2015 data. Because this chapter details the process of index construction, it will be structured to follow each step towards constructing the WAGE score, including item coding, imputation of missing data, and item weighting and aggregation. Each step of the process is presented, combining methods and results in a way that shows how one stage leads to the next. First, I will explain how I prepared the ENDES 2015 dataset and selected cases for index construction. I will then explore item weighting and aggregation using exploratory and confirmatory factor analysis, approaches to data reduction widely utilised in the construction of social indexes. I then calculate the Women’s Achievement (WA), Gender Equality (GE) scores, and finally combine them into an overall Women’s Achievement and Gender equality (WAGE) Score.

## 5.2 Dataset preparation

### 5.2.1 ENDES dataset

The ENDES survey is conducted on a nationally representative sample, which is reported annually (INEI, 2015). Its primary purpose is to provide information on the demographic profile and health status of women and children in Peru. The survey contains questions on the interviewee's social background and the characteristics of their house and household members, trauma and chronic diseases, physical measurements including height, weight, haemoglobin level and blood pressure, reproduction, contraception, pregnancy and childbirth, immunisation and health, fertility, women's empowerment, maternal mortality, and domestic violence (INEI, 2015).

ENDES draws from a target population of women between the ages of 15-49, including all household members who resided in the household the previous night. The sampling frame for the 2015 ENDES was the statistical and cartographic information from the 2007 National Census of Population and Housing (ibid.). The sampling procedure is a two-stage, probabilistic sample, stratified and self-weighted at the departmental level and by urban and rural areas (ibid.). The sample size of the 2015 ENDES was 35,900 households with data on 35,766 women between the ages of 15 and 49 years (ibid.). This age group reflects the DHS' historical focus on women of reproductive age. ENDES 2015 did not collect data directly from men, however, the survey asked women about their partners<sup>11</sup>. As such, ENDES 2015 contains information on the education and employment characteristics of the male partners of women who were in a relationship and were part of the survey sample.

Through its sampling framework and population weighting, ENDES is designed to collect information from a sample of women representative of the Peruvian population. Using individual woman-specific survey weights provided by ENDES, data can be adjusted for geographic sampling density. Table 8 provides an overview

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<sup>11</sup> The wording in ENDES 2015 contains gendered language that assumes women's partners are male

of the main demographic characteristics of ENDES 2015 survey participants. After the application of survey weights, it appeared that Quechua and other Indigenous groups were under-represented in the survey compared to with 2007 Census data. In the most recent (2007) National Census, the Quechua population constituted 13% of the population and the Aymara 1.7%, with other Indigenous groups comprising approximately 0.9% of the national population (INEI, 2007). This discrepancy may partly be explained by the fact that ethnicity is defined in different ways in the two surveys: ENDES utilises a combination of factors to determine ethnicity, including self-identification (*autoidentificación étnica*) and their 'mother tongue' (*lengua materna*) however, the national census used self-identification alone (Hidalgo Calle, 2013). This possible discrepancy is not corrected for or discussed further in this analysis as it may well be artefact and has no significant bearing on the primary objective of this Chapter.



Table 8: Socio-demographic characteristics of ENDES 2015 survey participants

Item	Frequency	Proportion (%)	Weighted frequency (n)	Weighted proportion (%)
<b>Age</b>	<b>35,766</b>	<b>100%</b>	<b>35,766</b>	<b>100%</b>
15-19	5,469	15.0	5,983	16.7
20-24	6,110	16.8	5,291	14.8
25-29	6,468	17.8	5,195	14.5
30-34	6,094	16.7	5,250	14.7
35-39	5,277	14.5	5,177	14.5
40-44	3,922	10.8	4,632	13.0
45-49	3,075	8.4	4,237	11.9
<b>Region (Departamento)</b>	<b>35,766</b>	<b>100%</b>		
Dpto. Amazonas	1,374	3.8	452	1.3
Dpto. Ancash	1,335	3.6	1,314	3.7
Dpto. Apurímac	1,122	3.1	513	1.4
Dpto. Arequipa	1,303	3.6	1,598	4.5
Dpto. Ayacucho	1,493	4.1	649	1.8
Dpto. Cajamarca	1,182	3.2	1,791	5.0
Prov. Const. del Callao	1,592	4.3	1,282	3.6
Dpto. Cusco	1,174	3.2	1,271	3.6
Dpto. Huanavelica	1,158	3.2	422	1.2
Dpto. Huanuco	1,469	4.0	817	2.3
Dpto. Ica	1,415	3.9	1,001	2.8
Dpto. Junín	1,313	3.6	1,355	3.8
Dpto. La Libertad	1,420	3.9	2,209	6.2
Dpto. Lambayeque	1,646	4.5	1,568	4.4
Dpto. Lima	4,498	12.3	11,644	32.6
Dpto. Loreto	1,509	4.1	1,266	3.5
Dpto. Madre de Dios	1,230	3.4	160	0.5
Dpto. Moquegua	1,212	3.3	212	0.6
Dpto. Pasco	1,220	3.3	287	0.8
Dpto. Piura	1,482	4.0	2,394	6.7
Dpto. Puno	1,032	2.8	1,278	3.6
Dpto. San Martín	1,363	3.7	1,021	2.9
Dpto. Tacna	1,283	3.5	384	1.1
Dpto. Tumbes	1,370	3.7	299	0.8
Dpto. Ucayali	1,460	4.0	579	1.6
<b>Geography</b>	<b>35,766</b>	<b>100%</b>		
Urban	26,063	71.1	28,380	79.4
Rural	10,592	28.9	7,386	20.7
<b>Marital status</b>	<b>35,766</b>	<b>100%</b>		
Living together	16,072	44.9	12,897	36.1
Separated	-	-		
Married	7,952	22.2	7,788	21.8
Widowed	113	0.3	128	0.4
Divorced	67	0.2	117	0.3
Single	11,562	32.3	14,836	41.5
<b>Ethnicity</b>	<b>35,766</b>	<b>100%</b>		
Castellano	2,530	91.3	33,763	94.4
Quechua	157	7.1	1,591	4.5
Aymará	410	0.4	182	0.5
Otra lengua nativa	33,310	1.2	214	0.6
Idioma extranjera	8	0.02	16	0.04

## 5.2.2 Excluded survey participants

### 5.2.2.A: Unpartnered Women

Constructing the WAGE score and its components requires both the comparison of women with other women (women's achievement, WA), and the comparison of women with their partners (gender equality, GE). The nature of the items that represent gender equality (first identified in Chapter 4 and elaborated further in this Chapter), such as decision-making between partners and experience of domestic violence in the current relationship, necessitates that data is available for both the individual woman and her partner. Therefore, given the nature of some of the gender items such as differences with partner, decision-making and experience of domestic violence, the WAGE Score was only calculated for women of reproductive age who reported having a partner in the ENDES 2015 survey. A total of 11,742 ENDES participants were unpartnered (32.8%), and thus excluded.

The differences in demographic characteristics between included and excluded participants are summarised in Table 9 below. There were statistically significant differences in age, ethnicity, geography and wealth between partnered and unpartnered (excluded participants). In general, excluded participants were younger and more likely to live in urban areas.

Table 9: Included (partnered) participants versus excluded (un-partnered) participants

	Partnered (included)		Un-partnered (excluded)		TOTAL	DIFFERENCE (Kruskal-wallis)
	Frequency (n)	Proportion (%)	Frequency (n)	Proportion (%)		
<b>TOTAL</b>	<b>24,024</b>	<b>67.2</b>	<b>11,742</b>	<b>32.8</b>	<b>35,766</b>	
<b>AGE GROUPS</b>						
15-19	1,057	4.4	4,360	37.1	5,417	Chi2 (6 df.) = 4905 p=0.0001
20-24	3,659	15.2	2,360	20.1	6,019	
25-29	4,849	20.2	1,487	12.7	6,336	
30-34	4,861	20.2	1,107	9.4	5,968	
35-39	4,276	17.8	897	7.6	5,173	
40-44	3,058	12.7	783	6.7	3,841	
45-49	2,264	9.4	748	6.4	3,012	
<b>ETHNICITY</b>						
Spanish	21,724	90.4	10,941	93.2	32,665	Chi2 (4 df.) = 57.3 p=0.0001
Quechua	1,848	7.7	677	5.8	2,525	
Aymara	114	0.5	44	0.4	158	
Other Indigenous	330	1.4	80	0.7	410	
Foreign Language	8	0.03	0	0.00	8	
<b>GEOGRAPHY</b>						
Urban	16,299	67.8	9,006	76.7	26,063	Chi2 (1 df.) = 198 p=0.0001
Rural	7,725	32.2	2,736	23.3	10,592	
<b>WEALTH QUINTILE</b>						
Poorest	6,233	25.9	2,261	19.3	8,607	Chi2 (4 df.) = 281 p=0.0001
Poor	6,257	26.0	2,598	22.1	8,964	
Middle	4,854	20.2	2,537	21.6	7,548	
Rich	3,817	15.9	2,415	20.6	6,436	
Richer	2,863	11.9	1,931	16.5	5,100	

### 5.2.2.B: Selecting one woman per household

ENDES is designed to collect information on all eligible women in each selected household. In the 2015 survey, there were between one (70.8% of households) and six (0.1% of households) eligible women present in households selected for data collection (INEI, 2015). A total of 29.1% of all households selected had more than one eligible woman on whom data was collected. This may lead to clustering of particular variables within a household, depending on the characteristics of the household itself. Multivariate statistical techniques, broadly defined as cluster analysis, exist to deal with the effects of clustering over a number of measured variables (Everitt, et al., 2011). These techniques consist of hierarchical methods, including agglomerative and divisive methods, and non-hierarchical methods, known also as k-means clustering methods (ibid.). An alternative approach to

overcome the issue of clustering at the household level, is to select one woman per household as a representative of others in the household.

The domestic violence module only contains information from one woman per household, who is selected using a random number board (INEI, 2005). Of the 24,024 partnered women included in the survey, 20,111 eligible women were randomly selected for the domestic violence questions. As demonstrated in Table 10 below, there were no significant differences in the socioeconomic characteristic of these women between those selected for the domestic violence module and those who were not selected; but there was some expected variation in age, and number of eligible women (related to household size). There was a difference in the relationship to the household head in the categories of daughter and daughter-in-law between those selected for the domestic violence module and those who were not selected. For indicators of domestic violence, it is difficult to make assumptions about the degree to which other household members have or have not experienced the same exposure to violence. It is thus difficult to re-code or impute information for those women (n=3,913) who were not selected for the domestic violence module.

To overcome the challenges of clustering at a household level and to simultaneously overcome the challenges of assumptions with re-coding or imputation of incomplete information on domestic violence, I decided to include only one woman per household – *the woman who was randomly selected for the violence module and thus had complete survey information* - in my final analysis. Thus, I excluded a further 3,913 women from the final analysis. This left a final dataset of 20,111 women representing one partnered woman per household in the 2015 ENDES.

Table 10: Characteristics of women selected for the domestic violence module (included) versus those not selected for the domestic violence module (excluded)

Categories	Not selected/excluded, n=3,913			Selected/included, n=20,111		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.
<b>Age groups</b>						
15-19	291	7.4	7.4	766	3.8	3.8
20-24	622	15.9	23.3	3,037	15.1	18.9
25-29	523	13.4	36.7	4,326	21.5	40.4
30-34	412	10.5	47.2	4,449	22.1	62.5
35-39	659	16.8	64.1	3,617	18.0	80.5
40-44	697	17.8	81.9	2,361	11.7	92.3
45-49	709	18.1	100	1,555	7.7	100
<b>Ethnicity</b>						
SPANISH-SPEAKER	3,573	91.3	91.3	18,151	90.3	90.3
QUECHUA	282	7.2	98.5	1,566	7.8	98.0
AYMARA	12	0.3	98.8	102	0.5	98.6
OTHER INDIGENOUS	44	1.1	99.99	286	1.4	99.9
FOREIGN LANGUAGE	2	0.1	100	6	0.03	100
<b>Wealth index</b>						
POOREST	830	21.2	21.2	5,403	26.9	26.9
POOR	879	22.5	43.7	5,378	26.7	53.6
MIDDLE	836	21.4	65.0	4,018	20.0	73.6
RICH	798	20.4	85.4	3,019	15.0	88.6
RICHER	570	14.6	100	2,293	11.40	100
<b>Geographic residence</b>						
Urban	2,897	74.0	74.0	13,402	66.6	66.6
Rural	1,016	26.0	100	6,709	33.4	100
<b>Relationship to household head</b>						
Head	252	6.4	6.4	1,523	7.6	7.6
Wife	2,008	51.3	57.8	15,782	78.7	86.2
Daughter	879	22.5	80.2	1,533	7.6	93.9
Daughter-in-law	433	11.1	91.3	816	4.1	97.9
Grand daughter	34	0.9	92.2	84	0.4	98.4
Mother	5	0.1	92.3	15	0.1	98.4
Mother-in-law	7	0.2	92.5	5	0.02	98.5
Sister	61	1.6	94.0	54	0.3	98.7
Other relative	138	3.5	97.6	133	0.7	99.4
Adopted/foster child	41	1.1	98.6	55	0.3	99.7
Not related	54	1.4	99.99	67	0.3	99.99
Maid	1	0.03	100	2	0.01	100
<b>Number of eligible women in household</b>						
1	126	3.2	3.22	16,894	84.0	84.0
2	2,548	65.1	68.34	2,651	13.2	97.2
3	933	23.8	92.18	449	2.2	99.4
4	238	6.1	98.26	100	0.5	99.9
5	54	1.4	99.64	13	0.1	99.98
6	14	0.4	100	4	0.02	100
<b>Total</b>	<b>3,913</b>	<b>100</b>		<b>20,063</b>	<b>100</b>	

### 5.2.3 Dataset cleaning and re-coding raw indicators

On the final dataset of 20,111 women eligible for inclusion in this study, I undertook a process of data cleaning and re-coding for all indicators included in the WA and GE scores. For each indicator, I assessed the completeness of data, if there were any incomplete or missing data, the pattern of incomplete data (such as skip patterns), and whether supplementary data existed in the survey to help recode or fill-in missing data. For each indicator, I recoded the original ENDES indicator to ensure that lower values (zero) represented relatively lower achievement and higher values reflected higher achievement. This recoding was performed on binary (0/1) and ordered categorical items.

The details of the processing and re-coding of each survey question can be found in Table 12 and the entire process is summarised in Appendix G. From the formative qualitative work performed in Chapters 3 and 4, I identified a working list of items and possible organising domains for the WA and GE Scores.

There were a total of 23 questions, over six possible domains, that represented *women's achievement*:

#### Education

1. Educational attainment (categorical; highest level of schooling achieved)
2. Literacy (categorical; illiterate, partially literate, literate)

#### Employment/financial

3. Currently working (binary; yes/no response)
4. Vulnerable employment (categorical; not working, vulnerable employment, non-vulnerable employment)
5. Hierarchy of employment (categorical; classification levels 1, 2, 3, 4)
6. Wages for work (categorical; not working, unpaid, paid in-kind, mixture, or with cash)

#### Health empowerment

7. Knows where to go to get healthcare (binary)
8. Getting permission to go to healthcare (binary)
9. Getting money to for healthcare (binary)
10. Not wanting to go alone to health facility (binary)

11. No female health providers (binary)

#### Health access and family planning

12. Unmet need for family planning (binary; defined as women who do not want to become pregnant but are not using contraception (USAID, 2016))
13. Knows of contraception method (binary; yes/no response)
14. Access to condom if necessary (binary; yes/no response)
15. Visit to health facility in last 12 months (binary; yes/no response)
16. Coverage by health insurance (binary; yes/no response)

#### Age and relationships

17. Age at first marriage (binary, <20 years cut-off)<sup>12</sup>
18. Age at first intercourse (binary, <15 years cut-off)<sup>13</sup>

#### Permissive attitudes to wife beating

19. If she goes out without telling him (binary; yes/no response)
20. If she neglects the children (binary; yes/no response)
21. If she argues with him (binary; yes/no response)
22. If she refuses sex (binary; yes/no response)
23. If she burns the food (binary; yes/no response)

In addition, a total of 18 survey questions over three possible domains represented *gender equality*:

#### Partner and household differences

16. Difference in educational attainment (categorical; difference in highest level of schooling achieved between individual woman and her partner)
17. Difference in work status (categorical, differences between currently working status)
18. Difference in vulnerable employment (categorical; the difference in vulnerable employment status between individual woman and her partner)
19. Age difference between partners (cut-off > 10 year's age difference)

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<sup>12</sup> 20-year old cut-off determined by opinions expressed in qualitative interviews, detailed in Chapter 4, Table 8

<sup>13</sup> 15-year old cut-off determined by opinions expressed in qualitative interviews, detailed in Chapter 4, Table 8

20. Partner earns more than respondent (categorical; more, less, about the same)

21. Head of household is male or female? (binary)

#### Decision Making

22. Decision making, contraception use (categorical; partner, joint, individual)

23. Decision making, healthcare (categorical; partner, joint, individual)

24. Decision making, what to do with husband's money (categorical; partner, joint, individual)

25. Decision making, large household purchases (categorical; partner, joint, individual)

26. Decision making, small household purchases (categorical; partner, joint, individual)

27. Decision making, visits to family (categorical; partner, joint, individual)

28. Decision making, food to cook (categorical; partner, joint, individual)

#### Violence against women

29. Control issues identified with partner (ordinal; up to 6 control issues identified)

30. Experience of emotional violence with partner (binary; yes/no response)

31. Experience of minor physical violence with partner (binary; yes/no response)

32. Experience of major physical violence with partner (binary; yes/no response)

33. Experience of sexual violence with partner (binary; yes/no response)

### 5.2.4 Missing Data

Of the 20,111 women included in the dataset for score construction, and after re-coding the raw items to represent relevant WAGE score indicators, 407 women or 2% of all participants had missing data in at least one gender item (of which 5, or about 0.02%, had missing data in two items).



Table 11 presents the frequency of missing data in ENDES items relevant to the WAGE Score. Of the 41 items retained in the WAGE Score construction, nine had some missing data, ranging from 0.004% (EDUi: *female educational attainment*) to 0.2% (FPaccess: *access to a condom if necessary*).

Missing item responses in the domestic violence module were explained by the fact that women were selected into the module but privacy was not possible (n=47), or that the interview was incomplete (n=1). In these cases, the set of five items pertaining to domestic violence were missing. Missing data in other items (education, decision making and family planning access) could not be explained by other means such as skip patterns or by other response items (Table 11).

*Table 11: Missing data relevant to the WAGE Score according to recoded ENDES items*

Item	Type of item	Missing data	
		Frequency	Proportion of total
EDUi: <i>female educational attainment</i>	Ordinal	1	<b>0.004</b>
FPaccess: <i>Access to condom</i>	Binary	290	<b>0.2</b>
EDUp: <i>Partner's educational attainment</i>	Ordinal	9	<b>0.02</b>
DMmoney: <i>Final say on what to do with the money husband earns</i>	Ordinal	64	
VAW: <i>Domestic Violence module (5 items)</i>	Ordinal	48	
1. <i>Control</i>			
2. <i>Emotion violence</i>			
3. <i>Minor physical violence</i>			
4. <i>Major physical violence</i>			
5. <i>Sexual violence</i>			
<i>Selected by privacy not possible</i>		47	
<i>Selected but interview not complete</i>		1	
<b>Complete cases</b>		<b>19,704</b>	<b>98.0%</b>
<b>Total number of individuals with at least 1 item missing</b>		<b>407</b>	<b>2.0%</b>
<b>Total number of individuals with 2 items missing</b>		<b>5</b>	<b>0.02%</b>
FPaccess/DMmoney:		0	
FPaccess/VAW		2	
FPaccess/EDUi		1	
FPaccess/EDUp		1	
DMmoney/VAW		1	
DMmoney/EDUi		0	
DMmoney/EDUp		0	
VAW/EDUi		0	
VAW/EDUp		0	
EDUi/EDUp		0	

Missing data can introduce bias and undermine the validity of research results (Sterne, et al., 2009). Techniques to address missing data can be arranged by the type or 'missingness,' which reflects the reason data is missing. Patterns of missing data can be arranged into three categories (Sterne, et al., 2009):

1. Missing completely at random (MCAR): *completely random* pattern of missing data, where there are no systematic differences between the missing and observed data. In other words, the probability that a missing item,  $X$ , is missing is unrelated to the value of  $X$  or any other covariate: (Kraft, 2015) (Sterne, et al., 2009)

$$P(M=1|X) = P(M=1) \quad (1)$$

2. Missing at random (MAR): *systematic differences* between missing and observed values, explained by differences in observed data. This can be summarised as the probability that the missing item,  $X_{miss}$ , is missing is related to an observed value of another covariate,  $X_{obs}$ : (Kraft, 2015) (Sterne, et al., 2009)

$$P(M=1|X_{obs}, X_{miss}) = P(M=1|X_{obs}) \quad (2)$$

- Missing not at random (MNAR): *systematic differences* between missing and observed values not explained by observed items, reflecting underlying unmeasured confounding factors. So, the probability that  $X$  is missing is related to another unknown or missing value: (Kraft, 2015) (Sterne, et al., 2009)

$$P(M=1|X_{obs}, X_{miss}) = P(M=1|X_{obs}, X_{miss}) \quad (3)$$

The term MAR has been recognised as counterintuitive, in that there are systematic differences (not completely random) that depend on the information already observed (Donders, et al., 2006) (Pedersen, et al., 2017). For example, men may be less likely to fill out a survey on depression, so that, once gender is accounted for, the missingness does not depend on the level of depression (example cited in Pederson et al) (2017).

#### 5.2.4.A: Complete case analysis and MCAR data

Complete case analysis is a technique to deal with missing data through the deletion of cases with missing data. This technique limits the analysis to only those with complete data. Although it is a conceptually and procedurally simple approach, it risks introducing bias if the missing data are not MCAR and can be seen as ‘wasteful’ of other data if the frequency of missing data are high (Donders, et al., 2006; Kraft, 2015; Pedersen, et al., 2017; Sterne, et al., 2009).

This technique was thus considered only for the education questions where the frequency of missing data was very low. There was only one individual with missing data for the individual education item (EDUi). She was 29 years, from a rural Quechua background and poor. There were nine individuals with missing data for the partner education item (EDUp). These consisted of a spread of ages (23-49 years), urban (n=8) and rural (n=1) locations, Spanish (n=8) and Aymara (n=1) ethnicities, and from a spread of wealth index quintiles.

Given the very small amount of missing information contained in the two items EDUi and EDUp (n=10 total, around 0.02%) and the even spread of participant backgrounds, I decided that it would be justifiable to drop these 10 individuals from the analysis.

#### 5.2.4.B: Imputation of missing items and MAR data

Following the exclusion of 10 individuals, as described above, the seven remaining items with a higher frequency of missing data were examined. Table 12 contains information on the characteristics of respondents with missing data compared to those with no missing data, by age, geographic location, ethnicity and wealth. I found statistically significant differences in the distribution of data over categories of age (Kruskall-Wallis test statistic 29.2,  $p < 0.001$ ), geography (Kruskall-Wallis test statistic 18.4,  $p < 0.001$ ) and wealth (Kruskall-Wallis test statistic 23.2,  $p < 0.001$ ). This indicates that there are systematic differences between individuals with missing and non-missing data, and that there is a risk of introducing bias if these cases are excluded through complete case analysis. This fits the pattern of “MAR” described above.

An option to address “MAR” missing data is to impute the missing items using a process of Multiple Imputation, which will be described in Section 5.2.5 below.

Table 12: Missing data - differences between individuals with complete cases and those with missing data

	Cases with missing FP data		Cases with missing DM data		Cases with missing VAW data		All cases with missing data		Complete Cases (cases without missing data)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
<b>Age 5-year groups</b>										
15-19	26	9.03	1	1.56	3	6.25	30	7.56	736	3.74
20-24	48	16.67	7	10.94	3	6.25	58	14.61	2,978	15.11
25-29	43	14.93	8	12.5	7	14.58	58	14.61	4,266	21.65
30-34	41	14.24	9	14.06	6	12.5	56	14.11	4,390	22.28
35-39	38	13.19	10	15.62	12	25	60	15.11	3,554	18.04
40-44	46	15.97	14	21.88	9	18.75	68	17.13	2,293	11.64
45-49	46	15.97	15	23.44	8	16.67	67	16.88	1,487	7.55
<b>Geographic residence</b>										
Urban	71	24.65	50	78.12	42	87.5	161	40.55	13,233	67.16
Rural	217	75.35	14	21.88	6	12.5	236	59.45	6,471	32.84
<b>Ethnicity</b>										
SPANISH-SPEAKER	164	56.94	57	89.06	44	91.67	262	65.99	17,881	90.75
QUECHUA	78	27.08	3	4.69	4	8.33	85	21.41	1,480	7.51
AYMARA	3	1.04	3	4.69	0	0	6	1.51	95	0.48
OTHER INDIGENOUS	43	14.93	1	1.56	0	0	44	11.08	242	1.23
FOREIGN LANGUAGE	0	0	0	0	0	0	0	0	6	0.03
<b>Wealth Index</b>										
POOREST	213	73.96	12	18.75	8	16.67	232	58.44	5,170	26.24
POOR	51	17.71	15	23.44	8	16.67	73	18.39	5,303	26.91
MIDDLE	13	4.51	12	18.75	6	12.5	31	7.81	3,984	20.22
RICH	10	3.47	17	26.56	14	29.17	40	10.08	2,978	15.11
RICHER	1	0.35	8	12.5	12	25	21	5.29	2,269	11.52
<b>Total</b>	<b>288</b>	<b>100</b>	<b>64</b>	<b>100</b>	<b>48</b>	<b>100</b>	<b>397</b>	<b>100</b>	<b>19,704</b>	<b>100</b>



### 5.2.5 Multiple Imputation

There is a consensus that, in the situation where data is missing at random (MAR), multiple imputation is a suitable technique to achieve an unbiased and statistically more powerful analysis (Sterne, et al., 2009).

Multiple imputation is a statistical technique employed to complete a dataset by imputing missing variables based on the pattern of observed variables (Azur, et al., 2011). To facilitate valid statistical inferences from an incomplete dataset, the procedure attempts to fill in missing data whilst preserving the structure in the data and its associated uncertainty (van Buuren, 2007). The multiple imputation approach imputes missing data by replicating the incomplete dataset multiple times, and, each time, replacing the missing data with values drawn from an imputation model (Rezvan, et al., 2015). The statistical analysis of interest (for example, logistic regression of a binary outcome on various predictor variables) is performed on each imputed dataset, prior to combining the estimates (and their standard errors) into a single estimate using Rubin's rules. Rubin's rules guide the combination of individual estimates and standard errors from each imputed dataset, described in greater depth by Little and Rubin (Little & Rubin, 2002; Marshall, et al., 2009).

In summary, the general steps of performing multiple imputation include (Pedersen, et al., 2017):

1. Selection of independent variables that may help to impute the items with missing data, including all items used in subsequent analysis models, as well as any auxiliary variables which make the MAR assumption plausible;
2. Creation of multiple, imputed datasets, where missing values in each dataset are drawn from the posterior distribution of the missing data, given the observed data;
3. Imputation of the association of interest using a selected statistical method. In the case of binary items, a logistic regression model was used. In the case of ordinal categorical items, ordered logistic regression was used. This allowed the estimation of coefficients and corresponding standard errors in each of the imputed datasets;

4. The measures of association from each imputed dataset are combined through the application of Rubin's rules

In situations where multiple items have missing data, multiple imputation by chained equations (MICE) (known also as fully conditional specification) can be performed (Rezvan, et al., 2015). It is also suitable for data with both categorical and continuous variables (Manly & Wells, 2015). This is a technique where separate, conditional univariate imputation models are specified for each item with missing data (Rezvan, et al., 2015). The MICE algorithm is based on a set of univariate imputation models, which regress one item on all the other covariates of the outcome using a sequence of conditional regression models (Héraud-Bousquet, et al., 2012; Zhu & Raghunathan, 2015).

A major requirement of imputation modelling is that all items used during primary, completed-data analysis must be included in the imputation model (STATA, 2013). In other words, the model must be specified not only in terms of the item with missing data, but also in terms of the other items used in the completed-data analysis. Because the WAGE score contains two separate components (the women's achievement, WA, and the gender equality, GE, scores), which contain different groups of items respectively, I divided my approach to multiple imputation in two parts: multiple imputation of missing data specific to the WA score and multiple imputation for missing data specific to the GE score.

**In the 23 WA score items**, and after dropping ten individuals with missing education items (one individual with missing data in EDUi, and nine individuals with missing data in EDUp, above) only one item contained missing data:

1. *FPaccess* (n=288 missing): binary item representing whether women who could access a condom if necessary.

Prior to imputation, I specified the following logistic regression model, which regressed *FPaccess* on the 22 additional items contained in the WA score plus age, geographic location, and wealth:



*FPaccess: logit FPaccess {WA Score items} c. age i. geography i. wealth (4)*

I chose not to use ethnicity in the imputation regression model because of the lack of variability in item response (>90% Spanish-speaking). During the execution of this logistic regression model, I encountered the issue of perfect prediction, which is a relatively common occurrence inherent to the discrete nature of the data, due to the presence of covariate patterns which predict the outcome variable almost perfectly. This is problematic because it usually leads to infinite coefficients with infinite standard errors (STATA, 2013). In the above model *FPknowledge* was the covariate that demonstrated perfect prediction.<sup>14</sup> To overcome this, I used the ‘augment’ option to perform augmented regression, which adds additional observations with small weights to the data during estimation of model parameters which prevents perfect prediction (STATA, 2013; White, et al., 2010).

Following imputation, I used the *mi estimate* command to estimate *FPaccess* via a logistic regression model, before using these estimates to predict a new item labelled *FPaccessMICE* (which included the missing values of *FPaccess*). I then replaced the missing values of the original *FPaccess* (n=288) with those predicted using the *mi predict* command (rounded to the nearest whole integer, zero or one).

**In the GE score items**, six of the 18 items contained missing data:

1. DMmoney (n=64): one categorical item that represents the primary decision maker for how to spend your partner’s money.
2. VAW (n=48): a group of five items representing lifetime experience of violence in control, emotional, physical (minor), physical (major) and sexual categories.
  - 1) Control (categorical, ordinal)
  - 2) Emotional (binary)
  - 3) Minor physical violence (binary)

---

<sup>14</sup> I identified this by using the ‘noisily’ command in Stata when running the multiple imputation. This command specifies that all outputs from the univariate conditional models are displayed.

- 4) Major physical violence (binary)
- 5) Sexual violence (binary)

There were only three individuals who had more than one item (two items maximum) missing (Table 4 above). Other cases with missing data only had one item missing. I decided to impute the missing data on each item over each case with missing data, meaning that three individuals contained imputed data via multiple imputation for two items.

I constructed consecutive imputation models for each of the six items with missing data; these were defined as either ordinal logistic regression models for categorical items, or logistic regression models for binary items. Each of these models regressed the item with missing data on all the other items contained in the GE score, and were conditional on the participant's age, geographic location, and wealth index scores:

*DMmoney: ologit DMmoney {GE Score items} c. age i. geography i. wealth (5)*

*VAWcontrol: ologit VAWcontrol {GE Score items} c. age i. geography i. wealth (6)*

*VAWemotional: logit VAWemotional {GE Score items} c. age i. geography i. wealth (7)*

*VAWphys1: logit VAWphys1 {GE Score items} c. age i. geography i. wealth (8)*

*VAWphys2: logit VAWphys2 {GE Score items} c. age i. geography i. wealth (9)*

*VAWsex: logit VAWsex {GE Score items} c. age i. geography i. wealth (10)*

Prior to the imputation, I transformed three items that had negative values (EDUdiff, WORKdiff, VULdiff) by adding a positive integer to each of the item values in order to bring all values to above zero, without changing the relative value of the selected answer. I then checked each regression model prior to the mi function, to exclude any convergence problems.

Using chained imputation (the *mi imputed chained* command on Stata13) I found that the EDUdiff item predicted success perfectly when VAWsex was regressed onto all the other items. As described above, I used the 'augment' command to facilitate an augmented regression and prevent the issue of perfect prediction

(STATA, 2013; White, et al., 2010). I specified the MICE procedure to run a total of M=25 plus 5 added imputations, with a standard burn-in of 10 iterations and an additional 50 iterations subsequently. Although standard guidance is that M=3 or M=5 imputed datasets are adequate, it has been argued that a reasonably larger number of imputations should be applied to reduce a large Monte Carlo error (Rezvan, et al., 2015); a possible rule of thumb is that “...the number of imputations should be similar to the percentage of cases that are incomplete” (White, et al., 2011, p. 388).

Following imputation, I used the *mi estimate* command to estimate each of the six items (*DMmoney*, *VAWcontrol*, *VAWemotional*, *VAWphys1*, *VAWphys2*, *VAWsex*) via ordinal logistic or logistic regression models, before using these estimates to predict the new items (*DMmoneyMICE*, *VAWcontrolMICE*, *VAWemotionalMICE*, *VAWphys1MICE*, *VAWphys2MICE*, *VAWsexMICE*). Because I was using a dataset where multiple items contained missing data, I specified the *esamvaryok* option in the estimation model, which allows estimation when the estimation sample varies across imputations (STATA, 2013), and only used the first 10 imputations so that my model returned estimates for the values of all 20,101 individuals. This strategy falls into an acceptable territory of numbers of imputations based on the guidance detailed by Rezvan et al. (2015) and White et al. (2011) above, where M=10 imputations exceeded the proportion of missing data (just over 2%). In the case of the regression model for *VAWphys1*, the item *VAWemotional* predicted success perfectly, so it was dropped from the *VAWphys1* regression model for the analysis. I then replaced the missing values of the original items with those predicted using the *mi predict* command.

Following imputation of all missing data, and with a complete dataset, I progressed to the calculation of gap scores for each item, by WA and GE scores. I performed a sensitivity analysis by comparing the overall WA, GE and WAGE score results between the original incomplete dataset and the imputed dataset. There were no significant differences in the mean values between the original and imputed datasets.

### 5.3 Defining and calculating the gaps in achievement and equality indicators

Each individual in the ENDES survey embodies a number of achievements, which will be combined in a certain way into a score that represents individual achievements (WA) or gender equality (GE). But how does she compare to others in the survey? And how does she compare with her partner? How can these differences be quantified in a consistent and comparable way?

As the framework for the WAGE emerged, so too did the need for a consistent, comparable way to demonstrate individual performance in comparison to others. In the items reflecting women's achievements (WA), this comparison is between the individual woman with others in the survey. Whereas, in the items reflecting gender equality (GE), this comparison is between the individual woman and her male partner. To facilitate a) the comparison of an individual against her peers, and b) the comparison of an individual against her partner in a consistent and comparable manner, I employed the concept of a gap score. A gap score demonstrates the difference between the individual and a certain fixed level of achievement.

Calculating a gap score between individual values and a predetermined level of achievement has a number of advantages. First, it facilitates the comparison of the individual against the group performance in an intuitive way. Second, it enables the comparison of the individual against a gold standard or optimal level, and thus facilitates some commentary about the distance between the performance of the individual or group in relation to an ideal scenario. Third, the 'gap score' is a consistent approach that can be used to calculate differences in items over both WA phenomena (between an individual and the group) and GE phenomena (between the individual and her partner).

This will be described further in the sections below. I first introduce the conceptual framework of the gap scores – in women's achievements, WA, and gender equality, GE – in more detail. I then describe how each selected item is transformed, by WA and GE groups, to represent the *gap* between actual and optimal achievements.

### 5.3.1 Women's Achievement Gaps

The first gap is defined as the difference between a woman's *actual* and *optimal* achievements. *Actual* achievements are the individual ENDES participant scores in each item and *optimal* achievements reflect the maximum possible level of achievement for each item. For example, the ENDES item representing literacy is an ordinal, categorical variable with three categories: no literacy, partial literacy and full literacy. These are given the values of 0, 1, and 2 respectively. The *optimal* level of achievement, full literacy, is scored as 2.

Achievement gaps, denoted  $a_g$ , were calculated for each item by calculating the difference between optimal and actual achievement levels:

$$a_g = a_o - a_a \quad (11)$$

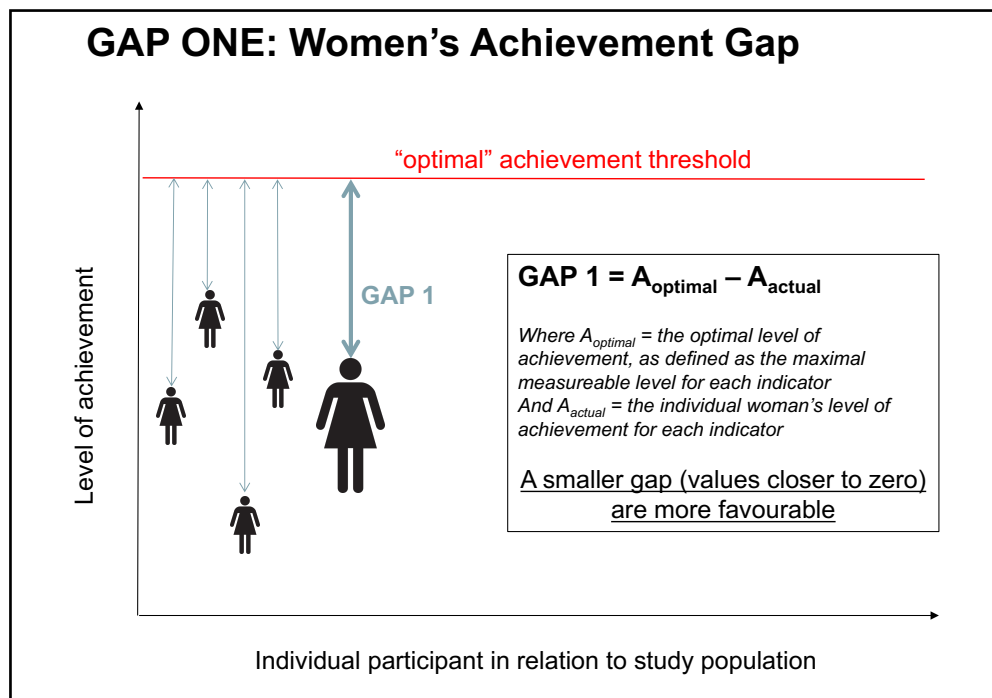
Therefore, when calculating an individual's literacy gap, it would be the difference of the optimal achievement (scored as 2) and the individual achievement. If the individual is fully literate, she would have a score of  $a_g = 2 - 2 = 0$ ; if she was partially literate she would have a gap score of  $a_g = 2 - 1 = 1$ ; and, if she was illiterate, she would have a gap score of  $a_g = 2 - 0 = 2$ .

Item-specific gaps were then standardised to a range between 0 (lowest gap, favourable), to 1 (largest gap, unfavourable) to ensure comparability and equal contribution to the overall score. This was done using the following formula:

$$a'_g = \frac{(a_g - \min)}{(\max - \min)} \quad (12)$$

Where  $a'_i$  represents the 0-1 standardised item-gap score,  $a_i$  represents the individual item-gap score,  $\min$  represents the minimum and  $\max$  represents the maximum value of the items scored in the original sample. Figure 9 details the concept and construction of item gaps for WA. Table 12 details the items included in the WA Score and their transformation.

Figure 9: Women's achievement gap



### 5.3.2 Gender Equality Gaps

Gender equality gaps represent the difference between a woman and her partner and three such gaps are identified: equality of achievement, process and power. Equality of achievements are represented by differences in achievement between an individual woman and her partner on items such as education and labour. Equality of process is represented by a score derived from items pertaining to decision-making processes in a partnership. Equality of power is represented by experience of intimate partner violence. Figure 10 details the concept and construction of item-specific gaps for GE.

#### Gender Equality: Achievement Gaps

Where possible, the difference in achievement between an individual and her partner ( $a_g$ ) was calculated as:

$$a_g = a_p - a_i \quad (13)$$

Here  $a_i$  represents individual achievements and  $a_p$ , represents the partner's achievement.

For example, in education (where levels of achievement were coded into categories as 0=no education, 1=incomplete primary education, 2=complete primary education, 3=incomplete secondary education, 4=complete secondary education and 5=tertiary education), if an individual woman had completed primary school and her partner had completed secondary school, their GE score would be:

$$\begin{aligned} a_g &= 4 - 2 \\ &= 2 \end{aligned} \quad (14)$$

These gaps were calculated by taking the absolute value of the difference between partners. Item scores further away from 0 represented greater inequality.

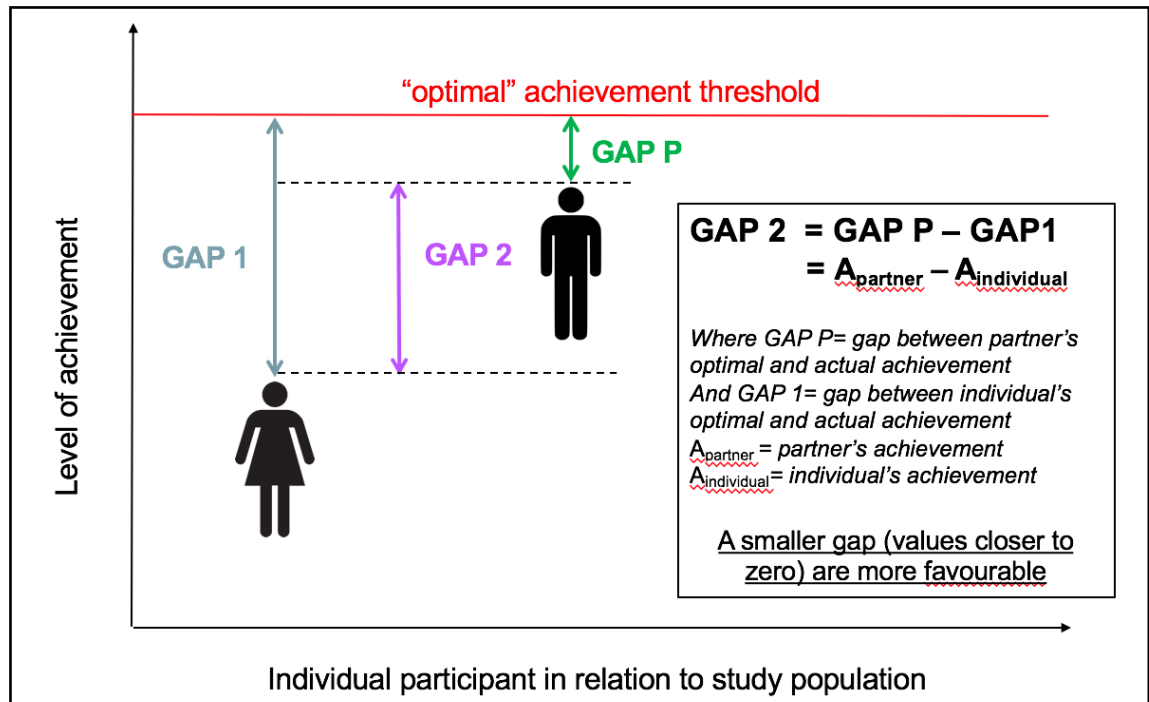
The transformed items were standardised between 0 and 1 as described above to ensure comparability.

#### Gender Equality: Process and Power Gaps

Some ENDES indicators, such as decision-making (process) variables and experience of VAW (power), could not be transformed to explore absolute differences between partners, but instead already represented the relative differences in process or power between partners. For example, an item on decision-making might contain information on whether the individual perceived herself or her husband as in charge of decisions, or whether decision-making was largely a joint process. To be consistent with the WA score (where women's achievements were coded from 0 being the lowest gap – favourable – to 1 being the largest gap - unfavourable), these items were coded to ensure that zero values reflected equality (as in, no gap between partners), and positive values represented relative female disadvantage (as in, a large gap between partners). In this coding scheme, negative values represented relative female advantage. This decision meant that both male and female advantage or disadvantage could be quantified in relation to an 'equal' mid-point of zero. These items and their transformation are listed in Table 13 below.

The transformed items were standardised between 0 and 1 as described above to ensure comparability.

Figure 10: Gender equality gap



\* Because the second gap is defined relative to the individual woman, Gap P is not the focus of interest but helps to define Gap 2.

\*\* The difference will be expressed in terms of absolute values



Table 13: ENDES Item Transformation

**13A: Individual achievement (WA) items**

DOMAIN	ENDES ITEM	ENDES CODING	TRANSFORMATION	“OPTIMAL” ACHIEVEMENT	WA GAP 1 *
Education	Education level <i>V149: female educational attainment</i>	Pre-defined levels: 0 No education 1 Incomplete primary 2 Complete primary 3 Incomplete secondary 4 Complete secondary 5 Higher	-	Optimal = completion of tertiary education  $EDU_{optimal} = 5$	$GAP1_{edu} = EDU_{optimal} - EDU_{actual}$ $= 5 - EDU_{actual}$
	Literacy <i>V155: female literacy</i>	Pre-defined levels: 0 Cannot read at all 1 Able to read part of sentence 2 Able to read whole sentence 3 No card with language 4 Blind/visually impaired	New coding: 0 Not literate 1 Partially literate 2 Fully literate	Optimal = full literacy  $LIT_{optimal} = 2$	$GAP1_{lit} = LIT_{optimal} - LIT_{actual}$ $= 2 - LIT_{actual}$
Labour, employment and wages	Working <i>V714 female participant working</i>	Pre-defined levels: 0 = not working 1 = working 9 = don't know, didn't answer	New coding: 0 = not working, don't know 1 = working	Optimal = working  $WORK_{optimal} = 1$	$GAP1_{work} = WORK_{optimal} - WORK_{actual}$ $= 1 - WORK_{actual}$
	Hierarchy of employment <i>V717 female's occupation</i>	Pre-defined coding: 0 Did not work 1 Professional, Technical, Managerial 2 Clerical 3 Sales 4 Agricultural/self-employed 5 Agricultural/employee 6 Household & domestic 7 Services 8 Skilled manual 9 Unskilled manual	Transformation: 0 = not working 1 = level 1 employment 2 = level 2 employment 3 = level 3 employment 4 = level 4 employment  Utilising Peruvian hierarchy of the classification of labour and employment (Instituto Nacional de Estadística e Informática, 2015)	Optimal = working in level 4 employment  $VUL_{optimal} = 4$	$GAP1_{hemp} = HEMP_{optimal} - HEMP_{actual}$ $= 4 - HEMP_{actual}$
	Vulnerable employment <i>V717 female's occupation</i>	Pre-defined coding: 0 Did not work 1 Professional, Technical, Managerial 2 Clerical 3 Sales 4 Agricultural/self-employed 5 Agricultural/employee 6 Household & domestic	Transformation: 0 = not working 1 = vulnerable employment 2 = stable employment  <i>Vulnerable employment is defined as the sum of the employment status groups of</i>	Optimal = working in non-vulnerable employment  $VUL_{optimal} = 2$	$GAP1_{vul} = VUL_{optimal} - VUL_{actual}$ $= 2 - VUL_{actual}$

		7 Services 8 Skilled manual 9 Unskilled manual	<i>own- account workers and contributing family workers. (UN ESA, 2007)</i>		
	Waged employment <i>V741 Type of earnings for work</i>	Pre-defined coding: 0 not paid 1 cash only 2 cash and in kind 3 in kind only	Transformed to: 0 = not paid 1 = in kind only 2 = mixed cash & in-kind 3 = cash only	Optimal = waged employment, paid in cash $WAGE_{optimal} = 3$	$GAP1_{wage} = WAGE_{optimal} - WAGE_{actual}$ $= 3 - WAGE_{actual}$
Family planning	Contraception use <i>V624 Unmet need for contraception</i>  <i>"The percentage of women who do not want to become pregnant but are not using contraception"</i>	Pre-defined coding: 0 Never had sex 1 Unmet need to space 2 Unmet need to limit 3 Using to space 4 Using to limit 5 Spacing failure 6 Limiting failure 7 Desire birth < 2 yrs 8 No sex, want to wait 9 Infecund, menopausal 99 don't know, didn't answer	Transformation to: 0 = Unmet need or failure 1,2,5,6 → 0  1 = Equivalence 0,8,9,99 → 1  2 = Appropriate, needs met 3,4,7 → 1	Optimal = contraception needs met  $UNMETC_{optimal} = 2$	$GAP1_{unmet} = UNMETC_{optimal} - UNMETC_{actual}$ $= 2 - UNMETC_{actual}$
	Condom access <i>V769 Access to condom</i>	Pre-defined coding: 0 No 1 Yes 8 Don't know	New coding 0 No, don't know 1 Yes	Optimal = access to condom $COND_{optimal} = 1$	$GAP1_{cond} = COND_{optimal} - COND_{actual}$ $= 1 - COND_{actual}$
	Family planning knowledge <i>V301 Knowledge of any method of contraception</i>	EDNDES coding: 0 No knowledge (10) 1 Knows only folkloric method (8) 2 Knows only traditional method (22) 3 Knows a modern method (20,071)	0 No knowledge or knows only folkloric or traditional method (V301=0 or 1 or 2)  1 Knows a modern method (V301=2)	Optimal = knowledge of modern form of family planning $CONTK_{optimal} = 2$	$GAP1_{contk} = CONTK_{optimal} - CONTK_{actual}$ $= 2 - CONTK_{actual}$
Healthcare access	Healthcare access <i>V394 Healthcare facility attendance in last 12 months</i>	Pre-defined coding: 0 No 1 Yes	-	Optimal = access to clinic in last 12 months $CLINIC_{optimal} = 1$	$GAP1_{clinic} = CLINIC_{optimal} - CLINIC_{actual}$ $= 1 - CLINIC_{actual}$
	Health insurance <i>V481 Covered by health insurance</i>	Pre-defined coding: 0 No 1 Yes	-	Optimal = covered by insurance $INSURE_{optimal} = 1$	$GAP1_{insurance} = INSURE_{optimal} - INSURE_{actual}$ $= 1 - INSURE_{actual}$
Health Empowerment	<i>A Knows where to go</i> <i>B Getting permission to go</i> <i>C Getting money for healthcare</i> <i>D Not wanting to go alone</i> <i>E No female health providers</i>	V467: Are the following a problem when seeking medical care for yourself? Pre-defined coding. 0 No 1 Yes	Transformed to 1 No 0 Yes	Optimal = no problems in seeking healthcare $HE_{optimal} = 1$	$GAP1_{insurance} = HE_{optimal} - HE_{actual}$ $= 1 - HE_{actual}$

Attitudes to wife beating	V744 A Wife beating justified if she goes out without telling him	Pre-defined coding: 0 No 1 Yes 8 Don't know	Transformed to: 0 = permissive of violence, unsure 1 = against violence	Optimal = attitudes against wife beating  WBJ <sub>optimal</sub> = 1	GAP1 <sub>wbj</sub> = WBJ <sub>optimal</sub> – WBJ <sub>actual</sub> = 1 – WBJ <sub>actual</sub>
	V744 B Wife beating justified if she neglects the children				
	V744 C Wife beating justified if she argues with him				
	V744 D Wife beating justified if she refuses to have sex				
	V744 E Wife beating justified if she burns the food				
Age and relationships**	V511 Age at first cohabitation	Continuous item, whole integers	Transformed to: 0 = <20 years first marriage 1 = >20 years first marriage	Optimal = marriage after the age of 20 AGEM <sub>optimal</sub> = 1	GAP1 <sub>agem</sub> = AGEM <sub>optimal</sub> – AGEM <sub>actual</sub> = 1 – AGEM <sub>actual</sub>
	V525 Age at first sexual experience	Continuous item, whole integers	Transformed to: 0 = <15 years first sex 1 = >15 years first sex	Optimal = first intercourse after the age of 15 AGEI <sub>optimal</sub> = 1	GAP1 <sub>ageI</sub> = AGEI <sub>optimal</sub> – AGEI <sub>actual</sub> = 1 – AGEI <sub>actual</sub>

\* Values closer to zero represent smaller gap between actual and optimal achievement

\*\* 20- and 15-year old cut-offs determined by opinions expressed in qualitative interviews

**13B: Gender equality (GE) items**

DOMAIN	ENDES ITEM	ENDES CODING	TRANSFORMATION	“OPTIMAL” ACHIEVEMENT	GE GAP 2
Difference in education	Education levels of individual and her partner <i>V149: female educational attainment</i> <i>V729: partner educational attainment</i>	Pre-defined levels (both V149 and V729): 0 No education 1 Incomplete primary 2 Complete primary 3 Incomplete secondary 4 Complete secondary 5 Higher	-	Optimal = equality of achievement between individual woman and her spouse.	$GAP2_{edu} = EDU_{partner} - EDU_{individual}$  Values closer to zero represent smaller gap between individual & partner achievement Positive values reflect relative male advantage Negative values reflect relative female advantage
Labour, employment and wages	Working <i>V714 female participant working</i> <i>V705 partner's occupation</i>	Pre-defined levels: 0 = not working 1 = working 9 = don't know, didn't answer	New coding: 0 = not working, don't know 1 = working	Optimal = equality of achievement both partners working	$GAP2_{work} = WORK_{partner} - WORK_{individual}$  Values closer to zero represent smaller gap between individual & partner achievement Positive values reflect relative male advantage Negative values reflect relative female advantage
	Vulnerable employment <i>V717 female's occupation</i> <i>V705 partner's occupation</i>	Pre-defined coding: 0 Did not work 1 Professional, Technical, Managerial 2 Clerical 3 Sales 4 Agricultural/self-employed 5 Agricultural/employee 6 Household & domestic 7 Services 8 Skilled manual 9 Unskilled manual	Transformation for both items: 0 = not working 1 = vulnerable employment 2 = stable employment	Optimal = equality of achievement and both partners working in non-vulnerable employment	$GAP2_{vul} = VUL_{partner} - VUL_{individual}$  Values closer to zero represent smaller gap between individual & partner achievement Positive values reflect relative male advantage Negative values reflect relative female advantage
	Earning differential <i>V746 Participant earns more than partner</i>	Pre-defined coding: 1 More than him 2 Less than him 3 About the same 4 Partner doesn't bring in money 5 Don't know	Transformation to: 1 = male earns more (2) 0 = equality (3) -1 = female earns more (1,4)	Optimal = wage equality	$GAP2_{wages} = 1 \text{ if male earns more}$ $\quad = 0 \text{ if earning about same}$ $\quad = -1 \text{ if female earns more}$  Values closer to zero represent smaller gap between individual & partner achievement Positive values reflect relative male advantage Negative values reflect relative female advantage

Family planning	Family planning decision making V632 Decision maker for contraception	Responses coded as: 1 Mainly respondent 2 Mainly husband, partner 3 Joint decision 6 Other	Transformed to: 1 = male dominant decision 0 = joint decision -1 = female dominant decision (6 => excluded)	Optimal = contraception decision made jointly	$GAP2_{dmc} = 1$ if male dominant = 0 if joint = -1 if female dominant Values closer to zero represent smaller gap between individual & partner achievement Positive values reflect male advantage Negative values reflect female advantage
Decision making *	V743F Final say on deciding on husband's money V743A Final say on own health care V743B Final say on large household purchases V743C Final say, daily household purchases V743D Final say on visits to family/relatives V743E Final say on food to be cooked each day ^	Pre-existing codes: 0 Nobody, 1 Respondent alone, 2 Respondent and husband/partner, 3 Respondent and other person, 4 Husband/partner alone, 5 Someone else	Transformed to: 1 = male dominant decision 0 = joint decision/equivalence -1 = female dominant decision	Optimal = decisions made jointly	$GAP2_{dm} = 1$ if male dominant = 0 if joint = -1 if female dominant Values closer to zero represent smaller gap between individual & partner achievement Zero-score represents "equality" Positive values reflect relative male advantage Negative values reflect relative female advantage * ^
Experience of VAW	D102 Number of control issues with spouse	Count of number of control issues identified out of a total of 6	-	Optimal = no control issues $CONTROL_{optimal} = 0$	$GAP2_{control} = CONTROL_{actual} - CONTROL_{optimal}$ = $CONTROL_{actual} - 0$ Values closer to zero represent smaller gap between actual and optimal achievement
	D104 Emotional violence D106 Less severe violence D107 Severe violence D108 Sexual violence	Pre-existing codes: 0= no 1 = yes	-	Optimal = no VAW $VAW_{optimal} = 0$	$GAP2_{VAW} = VAW_{actual} - VAW_{optimal}$ = $VAW_{actual} - 0$ Values closer to zero represent smaller gap between actual and optimal achievement
Age differences	V730 partner's age V012 respondent's age	Agee difference = V730-V012	Transformed to: 0 = >10 years difference 1 = <10 years difference	Optimal = marriage after the age of 20 $AGEM_{optimal} = 1$	$GAP_{edu} = AGEM_{optimal} - AGEM_{actual}$ = $1 - AGEM_{actual}$ Values closer to zero represent smaller gap between actual and optimal achievement

\* Based on qualitative fieldwork, decision-making pertaining to most daily choices was conceptualised as 'equitable' if both men and women had a say in it, regardless of the choice at hand. For example, men's participation in household decisions was as welcome as women's participation in financial decisions.

^ The coding remained the same in all areas of decision-making as both a way to recognise the underlying construct of male-female equality as expressed by the qualitative interviews and also as a way to remain consistent and agnostic about the direction of decision-making process over each scenario.  
See Sections 3.5.3, 4.4.2, and 5.3.2 above for more details on the justification behind this.



## 5.4 Multivariate Analysis

To understand the structure of the data and how items were interrelated, as well as to check for consistency with the qualitative grouping of items described in Chapters 3 and 4, I undertook an exploratory analysis of the patterns and associations between indicators selected for inclusion in both WA and GE scores.

### 5.4.1 Correlation matrix

First, I created a correlation matrix for the selected items divided by the items included in the WA score (n=23) and the items included in the GE score (n=18). The correlation coefficients of each item included in the score were calculated within each domain of the WA and GE Scores, and over all items in the WA and GE scores, respectively.

I used the Spearman's Rank correlation coefficient to quantify the strength of association between the indicators. It is a non-parametric measure of the rank correlation between two items. I chose to use this over the Pearson product-moment correlation coefficient because, unlike Pearson's product-moment correlation coefficient, it can be used for ordinal items, without an assumption that the relationship between the variables is linear (Hauke & Kossowski, 2011) (Mukaka, 2012). It may be used when one or more of the variables are skewed or ordinal. It also happens to be more robust to extreme values, although in this case this was not as relevant. Spearman's rank correlation coefficient is calculated in the following manner:

$$r_s = 1 - \frac{6 \sum d_i^2}{n(n^2-1)} \quad (15)$$

Where  $d_i$  is the difference between the two ranks of the two observations, and  $n$  is the number of observations (Mukaka, 2012). It has a value ranging from -1 to +1 (where -1 or +1 represent a perfect monotone relationship between the two items). A rule of thumb for reporting the strength of correlation is that values less than 0.30 are weak, 0.30-0.50 are low positive, 0.50-0.70 are moderate positive, 0.70-

0.90 are high positive and values greater than 0.90 are very highly positive (Mukaka, 2012).

Tables 14 and 15 demonstrate the rank correlations between items included in the WA and GE scores respectively. The tables include bold boxes that demark the original grouping of items as defined by the qualitative research.

Amongst the women's achievement (WA) items (Table 14), there were clear moderately positive associations between the groups of indicators corresponding to education (Spearman's rank correlation coefficient 0.54), and strongly positive associations in employment (Spearman's rank correlation coefficients 0.60 to 0.85). Between *health empowerment*, *age and maturity*, and *attitudes to wife beating* items, the association was positive but weak or low (Spearman's rank correlation coefficients 0.12 to 0.33, 0.27, and 0.32 to 0.54 respectively). There was less consistent association between indicators in the *family planning* and *health access* groups of items. However, the rank scores were still all very weakly positive (Spearman's rank correlation coefficients 0.02 to 0.15), indicating that they were weakly positively associated. There was also a low positive association between *education* and *health empowerment* groups of items, *education* and *employment* items, and *employment* and *health empowerment* items. There were no strong associations identified in the *unmet need for contraception* and *family planning knowledge* items, although *family planning access* was associated with some aspects of *health empowerment* (financial, freedom of movement, and gender, Spearman's rank correlation coefficients 0.13-0.14).

In the gender equality (GE) items (Table 15), the first group, *differences with partner*, demonstrated a variable pattern of association, ranging from a Spearman's correlation coefficient of 0.70 between work and vulnerable employment differences to a Spearman's correlation coefficient of close to zero between *differences in levels of education* and *differences in current employment*.<sup>15</sup> The second group, *decision-making*, demonstrated more consistent, weakly positive

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<sup>15</sup> This finding is consistent with reports from Latin America that higher levels of education for women do not guarantee more or better employment opportunities than men (Valenzuela & Abramo, 2006)



correlations ranging from 0.02 to 0.35. The final group, VAW, demonstrated consistently low positive correlations between items, ranging from 0.30 to 0.51. These can be seen in Table 15 below.

Table 14: Women's Achievement item correlations

	EDU	LIT	EMP	VUL	HEMP	WAGE	UNMET	FPA	FPK	HA	HI	HEK	HEA	HEF	HEM	HEG	AGEI	AGEM	WB1	WB2	WB3	WB4	WB5
EDU	1.00																						
LIT	0.54	1.00																					
EMP	0.01	0.04	1.00																				
VUL	0.19	0.08	0.72	1.00																			
HEMP	0.32	0.11	0.61	0.85	1.00																		
WAGE	0.21	0.10	0.60	0.84	0.73	1.00																	
UNMET	0.08	0.06	0.02	0.01	0.02	0.01	1.00																
FPA	0.30	0.22	0.00	0.09	0.13	0.11	0.06	1.00															
FPK	0.07	0.09	0.01	0.03	0.03	0.04	0.02	0.06	1.00														
HA	0.10	0.02	0.03	0.05	0.09	0.04	-0.02	0.08	0.03	1.00													
HI	0.03	0.03	0.02	0.06	-0.02	-0.04	0.02	0.01	0.02	0.15	1.00												
HEK	0.08	0.07	0.03	0.01	0.03	0.01	0.01	0.06	0.04	0.05	0.07	1.00											
HEA	0.05	0.08	0.14	0.08	-0.12	-0.08	0.01	0.06	0.04	0.01	-0.02	0.29	1.00										
HEF	0.31	0.15	0.00	0.07	0.14	0.08	0.04	0.13	0.03	0.07	0.03	0.21	0.16	1.00									
HEM	0.19	0.11	0.01	0.07	0.09	0.08	0.02	0.13	0.03	0.02	0.00	0.19	0.13	0.28	1.00								
HEG	0.23	0.11	0.01	0.06	0.11	0.07	0.03	0.14	0.02	0.06	0.01	0.18	0.12	0.27	0.33	1.00							
AGEI	0.26	0.11	0.02	0.06	0.10	0.07	0.03	0.04	0.02	0.04	0.00	0.01	0.00	0.07	0.03	0.04	1.00						
AGEM	0.35	0.11	0.05	0.10	0.20	0.11	0.02	0.09	0.02	0.07	-0.01	0.03	-0.01	0.12	0.06	0.11	0.27	1.00					
WB1	0.07	0.05	0.01	0.01	0.02	0.02	0.00	0.03	0.02	0.02	0.00	0.02	0.02	0.03	0.04	0.02	0.01	0.03	1.00				
WB2	0.09	0.07	0.00	0.02	0.03	0.02	0.01	0.02	0.02	0.01	0.00	0.03	0.03	0.04	0.04	0.03	0.02	0.04	0.38	1.00			
WB3	0.06	0.03	0.01	0.01	0.02	0.02	0.01	0.02	0.01	0.01	-0.01	0.04	0.04	0.03	0.03	0.04	0.01	0.03	0.38	0.42	1.00		
WB4	0.05	0.04	0.00	0.01	0.02	0.01	0.02	0.03	0.02	0.00	0.00	0.04	0.04	0.03	0.02	0.02	-0.01	0.01	0.36	0.32	0.49	1.00	
WB5	0.06	0.05	0.00	0.02	0.02	0.02	0.01	0.02	0.00	0.01	0.00	0.02	0.03	0.02	0.02	0.03	0.00	0.02	0.35	0.39	0.50	0.54	1.00

Key: EDU: education; LIT: literacy; EMP: current employment; VUL: vulnerable employment; HEMP: hierarchy of employment; WAGE: waged employment; UNMET: unmet need for family planning; FPA: family planning access; FPK: family planning knowledge; HA: healthcare access; HI: health insurance; HEK: health empowerment knowledge; HEA: health empowerment access; HEF: health empowerment financial; HEM: health empowerment mobility; HEG: health empowerment gender; AGEI: age at first intercourse; AGEM: age at first union; WB1-5: wife beating justified if she goes out without telling him, neglects the children, argues with him, refuses to have sex, burns the food.

Table 15: Gender Equality item correlations

	EDUdiff	VULdiff	WORKdiff	AGEDiff	DMcont	DMmoney	DMhealth	DMlarge	DMdaily	DMvisits	DMfood	VAWc	VAWe	VAWp1	VAWp2	VAWs
EDUdiff	1.00															
VULdiff	0.00	1.00														
WORKdiff	0.00	0.70	1.00													
AGEDiff	0.05	0.02	0.02	1.00												
Dmcont	-0.04	0.00	-0.01	0.01	1.00											
Dmmoney	-0.06	0.02	0.03	-0.05	0.02	1.00										
Dmhealth	-0.14	0.00	-0.03	-0.02	0.10	0.07	1.00									
Dmlarge	-0.08	-0.03	-0.05	-0.03	0.07	0.22	0.26	1.00								
Dmdaily	-0.06	0.01	0.01	-0.04	0.06	0.19	0.24	0.35	1.00							
Dmvisits	-0.05	0.00	-0.02	0.01	0.07	0.12	0.23	0.30	0.27	1.00						
Dmfood	0.04	0.00	0.02	0.00	0.02	0.06	0.08	0.07	0.23	0.11	1.00					
VAWc	0.06	-0.04	-0.03	0.04	0.04	-0.06	-0.01	0.00	0.00	0.03	0.00	1.00				
VAWe	0.02	-0.07	-0.06	0.02	0.07	-0.05	0.05	0.03	0.04	0.05	0.01	0.44	1.00			
VAWp1	0.03	-0.06	-0.05	-0.01	0.07	-0.03	0.05	0.02	0.05	0.04	0.03	0.37	0.51	1.00		
VAWp2	0.07	-0.05	-0.05	0.00	0.03	-0.04	-0.01	-0.01	0.00	0.02	0.03	0.30	0.39	0.48	1.00	
VAWs	0.04	-0.05	-0.04	0.01	0.05	-0.03	0.01	0.02	0.02	0.04	0.02	0.31	0.34	0.33	0.37	1.00

Key: EDUdiff: difference in education levels; VULdiff: difference in vulnerable employment; WORKdiff: differences in current employment; AGEdiff: differences in age of >10 years; DMcont: contraceptive decision-making; DMmoney: decision-making on spending husband's money; DMhealth: healthcare decision making; DMLarge: decision-making, large household purchases; DMDaily: decision-making, daily household items; DMvisits: decision-making on family visits; DMfood: decision-making on the type of food to cook; VAWc: experience of violence, control; VAWe: experience of emotional violence; VAWp1: minor physical violence; VAWp2: major physical violence; VAWs: experience of sexual violence

### 5.4.2 Exploratory Factor Analysis

To further understand the underlying structure of the data and how the selected items of the WA and GE scores could be organised to form certain domains, I performed exploratory factor analysis (EFA). EFA is a data reduction technique that consolidates the overall number of variables in an analysis by describing linear combinations of the original variables whilst still retaining maximal possible information (Fabrigar & Wegener, 2011). By finding a number of common underlying factors that allow the linear reconstruction of the original items, it can help identify and group items using a data-driven approach.

Although I used qualitative research in order to group my indicators through a process described in Chapters 3 and 4, I decided to perform an exploratory factor analysis which did not take into account any pre-determined underlying data structure. This allowed me to understand the item groups from a data-driven approach. I was then able to compare the domains that had arisen from qualitative research detailed in Chapters 3 and 4 with the quantitative results derived from EFA, to ensure my results were approximately consistent.

Prior to running the command, I normalised all the items between 0 and 1, so that they would contribute equally to the analysis. Although this necessitated a degree of normative judgment, I felt that I did not have enough empirical evidence from the qualitative research to rank or value the indicators in a more nuanced manner. In the absence of compelling evidence to the contrary, this is the conventional default position. Furthermore, by purposively not taking into account any pre-determined scale or value, this allowed me to understand the similarities and differences between qualitative groupings and data-derived groupings of items in the WAGE score.

I normalised all items using the following formula:

$$x_{new} = \frac{x - x_{min}}{x_{max} - x_{min}} \quad (16)$$

#### 5.4.2.1 Women's Achievement Score

I first ran the EFA for the 23 items of the WA Score using the *factor* command with the default principal factors method in Stata13. Ten factors had positive eigenvalues. An eigenvalue refers to the amount of variance – a measure of variation – explained by each factor (Kline, 1994). According to the minimum eigenvalue criterion, a factor must have a positive eigenvalue to be retained (Fabrigar & Wegener, 2011). The Kaiser criterion recommends that only factors with eigenvalues greater than 1.0 are retained (Costello & Osbourne, 2005). However, a more lenient method of selecting factors is to create a scree plot of the eigenvalues and retain only those above the 'kink' in the plot, also known as the Scree Test (Child, 2006). On examination of the scree plot of the eigenvalues, a clear kink could be seen at Factor 5, which indicated that those factors included in the model after Factor 5 contributed proportionally much less than the first five factors in explaining the overall variance of the data. Following *varimax* rotation of the five retained factors, an orthogonal rotation technique, I explored the patterns of the items which loaded at 0.03 or greater onto each factor. The five factors and their associated indicators and loadings are detailed in Table 16 below.

I explored sampling adequacy in post-hoc analysis using the Kaiser-Meyer-Olkin measure. The Kaiser-Meyer-Olkin test is a post-estimation command and a measure of sampling adequacy, testing for correlations amongst variables (Stata, 2017). Kaiser-Meyer-Olkin scores are reported between a value of 0 and 1, where a smaller value implies that items don't have enough in common to warrant a factor analysis (ibid.). In this situation, the KMO was 0.78, with all selected items (five above the kink) contributing individual KMO values of over 0.64.

Of the five retained factors, the first factor, labelled *employment*, represents employment and labour items, with *current employment*, *vulnerable work*, *hierarchy of employment* and *waged employment* all loading strongly. The second factor, labelled *attitudes to violence*, represents the loading of the five items of *attitudes to wife beating*. The third factor was a little more varied. It had items from *education*, *age and maturity*, and *family planning* loading onto the factor. This represents an association, as seen in the correlation matrix above, between education, age at first marriage and intercourse, and access to family planning;

thus, it was labelled *education and choice*. The fourth factor, labelled *health empowerment* clearly reflected the loadings of the health empowerment items onto the factor. And, finally, the fifth factor consisted mainly of the loadings of *age and maturity* items.

The items *unmet need for contraception*, *health access* and *insurance*, and *family planning knowledge* did not load onto any of the first five factors. In fact, they did not load strongly onto any factor subsequent to the first five retained factors. This may be due to the fact that there is relatively little variation in some of the items such as *family planning knowledge* (the majority of women in this sample know about a modern form of contraception). However, it may also be explained by the fact that some items that I originally identified and included, such as *unmet need for contraception*, are in fact not a construct that can be predicted by the other items included in this model, and thus lie outside of any of the current domains or factors. These discrepancies will be further explored below.

Table 16: WA Score – Five retained factors and associated loadings of 0.3 or more

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Education			0.75		
Literacy			0.60		
Current employment	0.73				
Vulnerable employment	0.96				
Hierarchy of employment	0.86				
Waged Employment	0.85				
Unmet need for contraception					
Family planning access			0.33		
Family planning knowledge					
Health access					
Health insurance					
Health empowerment: knowledge				0.32	
Health empowerment: permission					
Health empowerment: finances				0.41	
Health empowerment: movement				0.47	
Health empowerment: gender				0.47	
Age of first intercourse					0.33
Age of first marriage			0.31		0.37
Wife beating justified		0.53			
Wife beating justified		0.55			
Wife beating justified		0.68			
Wife beating justified		0.67			
Wife beating justified		0.70			

Before proceeding, I took the opportunity to understand and reflect on the discrepancies between items and domains identified through qualitative workings, described in Chapters 3 and 4, and those identified by the process of EFA, described

above. Table 17 sets out both sets of domains, and their associated indicators and weightings, to help facilitate comparison. The left-hand side of the table, qualitatively derived indicators and domains, sets out the six domains and 23 indicators of the WA Score. Equal weighting has been given to each of the indicators within their relative domains, for the purpose of comparison. The right-hand side of the table, domains and indicators derived from EFA, demonstrates the five factors and 19 indicators, along with their loading weights.

*Table 17: Comparison of WA domains and items between qualitative analysis and EFA*

Qualitatively derived Indicators and domains			Domains and indicators derived from EFA		
DOMAIN	ITEMS	Weight	DOMAIN	ITEMS	Weight
Education	Educational attainment	0.5	Education and choice	Educational attainment	0.75
	Literacy	0.5		Literacy	0.60
Employment	Currently working	0.25		Access to condom if necessary*	0.33
	Vulnerable employment	0.25		Age at first union^	0.31
	Hierarchy of employment	0.25	Employment	Currently working	0.73
	Wages for work	0.25		Vulnerable employment	0.96
Health access and family planning	Visit to health facility within last 12 months	0.5		Hierarchy of employment	0.86
	Coverage by health insurance	0.5		Wages for work	0.85
	Unmet need for FP	0.33	-	-	-
	Knows of contraception method	0.33		-	-
	Access to condom if necessary	0.33		-	-
Health empowerment	Knows where to go	0.2		-	-
	Getting permission to go	0.2	Health empowerment	Knows where to go to get healthcare	0.32
	Getting money to go	0.2		Getting money to for healthcare	0.41
	Not wanting to go alone	0.2		Not wanting to go alone	0.47
	No female health providers	0.2		No female health providers	0.47
Age and maturity**	Age at first marriage	0.5	Age at marriage and first intercourse	Age at first marriage	0.33
	Age at first intercourse	0.5		Age at first intercourse	0.37
Permissive attitudes to wife beating	If she goes out without telling	0.2	Permissive attitudes to wife beating	If she goes out without telling	0.53
	If she neglects the children	0.2		If she neglects the children	0.55
	If she argues with him	0.2		If she argues with him	0.68
	If she refuses sex	0.2		If she refuses sex	0.67
	If she burns the food	0.2		If she burns the food	0.70

\* The access to condom item shifted to a new domain, labelled “education and choice”

\*\* The domain “Age and maturity” was renamed to “Age at marriage and first intercourse” to more accurately reflect the domain

^ The age at first union item loads onto both the ‘education and choice’ and the “Age at marriage and first intercourse” domains.

The *employment*, *health empowerment*, *age at first marriage and intercourse*, and *attitudes to wife beating* domains aligned well. The education indicators were associated with the indicator on access to condom and age at first marriage, forming a new domain titled '*education and choice*.' The indicators from the qualitatively-identified health access and family planning domain did not load in a meaningful manner onto any of the retained factors.

On review of the WA score item correlation matrix (See table 14 above), the *health access* items, *visits to health facility in last 12 months* and *health insurance coverage*, were weakly correlated to each other and demonstrated no meaningful correlations with other WA score items. Because the underlying construct of health empowerment was captured in a clear manner by the factor analysis, and because of the potential overlaps between these two domains relating to healthcare behaviors, I decided to drop these two items and retain the relevant health empowerment items from the EFA.

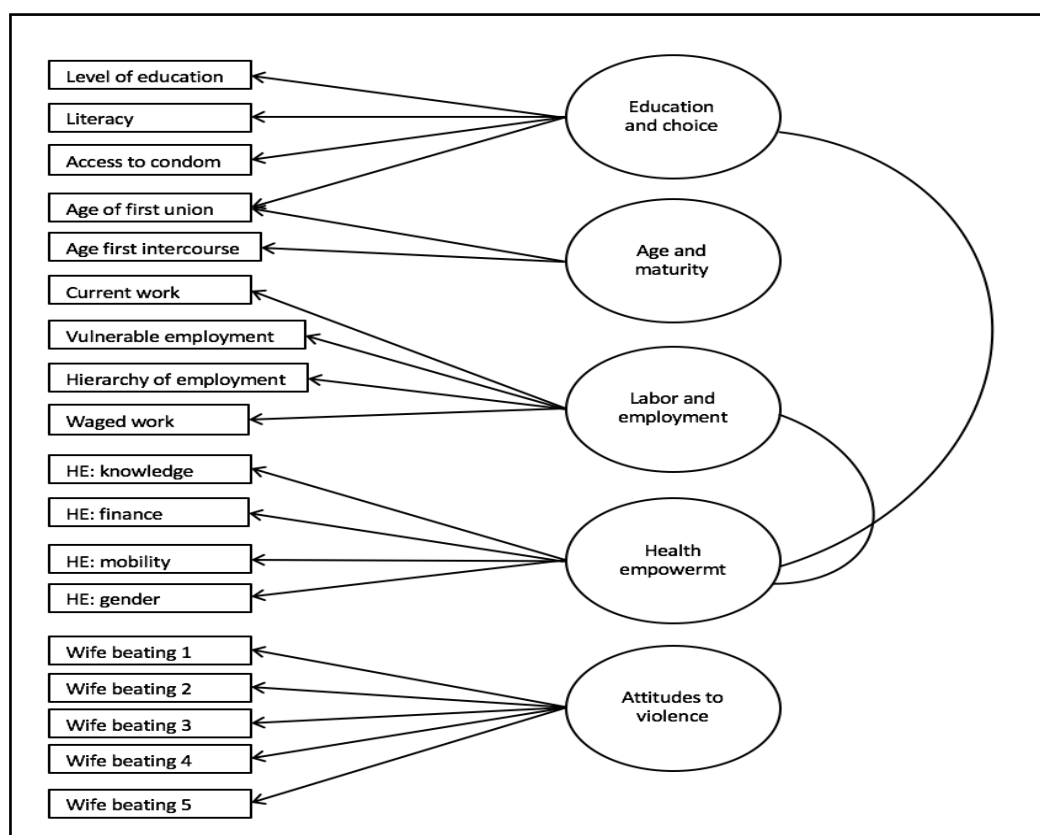
Similarly, the *unmet need for contraception* item demonstrated no meaningful pattern of correlation with other factors included in the model (Table 14 above). Because of the significance of family planning in international measures of women's empowerment and gender equality (identified in Chapter 2), and also because of how family planning was found to reflect women's agency and gender dynamics in a relationship during my qualitative interviews described in Chapter 3, it was important to keep this item. However, when examining other family planning items, the *unmet need for contraception* item demonstrated positive correlation with *contraception decision-making* (from the GE score items). So, I decided to re-categorise the *unmet need for contraception* item into the GE Score pool of items. Therefore, the *unmet need for contraception* and *contraception decision-making* items from now on are categorised in the group of GE score items, which will be examined further in section 5.4.2.2 below.

Using these factor loadings and groupings from Table 16 above, I was able to arrange the original items by their underlying factors in a pathway diagramme (Figure 11 below). The rectangular boxes represent the items retained in the model



following EFA. The oblong shapes represent the underlying factors that explain the structure of the dataset. The arrows demonstrate how the factors relate to each item. The curved lines between factors (*education and choice*, *labour and employment*, and *health empowerment*) represent some cross-associations between the factors, as identified originally in Table 13 and discussed in Section 5.4.1 above. This diagramme will help guide the Confirmatory Factor Analysis, which is described in Section 5.4.3 below.

Figure 11: Pathway diagramme representing the results of exploratory factor analysis for the WA Score



#### 5.4.2.2 GE Score

I performed EFA for a total of 19 items included in the GE score (18 originally identified items plus the additional item of *unmet need for contraception* re-categorised from the WA score group of items).

When performing EFA for the items selected for the GE Score, I ran the factor command in Stata 13 and followed a similar approach to above. There were seven positive eigenvalues with three above 1.0; however, I chose to retain 5 factors based on the kink in the scree-plot so as to capture as much variance in the data as possible (Child, 2006). The five retained factors explained a cumulative proportion of 1.34 (which summed to value larger than 1 because of the negative eigenvalues in the model) of the variance. I rotated the data using the default *varimax* rotation. The five factors and their loadings, following rotation, are described in Table 18.

I explored sampling adequacy in post-hoc analysis using the Kaiser-Mayer-Olkin measure. The overall Kaiser-Mayer-Olkin value was 0.71, with all items contributing a Kaiser-Mayer-Olkin score of at least 0.50. This indicates that the selected items have enough in common to warrant factor analysis (Stata, 2017).

Table 18: GE Score - Five retained factors and associated loadings of 0.3 or more

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Education differences					0.22
Vulnerable employment differences			0.77		
Differences in work			0.77		
Difference in wages			0.47		
Age difference >10 years					
Household head yes/no					
Unmet need for contraception				0.28	
Decision-making contraception				0.28	
Decision-making money		0.30			
Decision-making health		0.42			
Decision-making large purchases		0.55			
Decision-making daily purchases		0.56			
Decision-making visits		0.46			
Decision-making food		0.23			-0.25
VAW control	0.55				
VAW emotional	0.66				
VAW minor physical	0.68				
VAW major physical	0.61				
VAW sexual	0.51				

Of the five factors identified, Factor 1 represents individual *experience of violence*. All five items representing VAW (control, emotional, minor physical, major physical and sexual) demonstrated strong loadings onto this factor. Factor two represents *decision-making in the household*, with decision-making items relating to money, health, large purchases, daily purchases, visits to family and food loading onto this

factor. Differences in work, wages and vulnerable employment were the factors that loaded onto Factor 3, which I labelled *labour differences*. Factor 4 represented the underlying construct of contraception decision and use, with decision-making for contraception and unmet need for contraception loading onto this factor. Finally, Factor 5 contained information on *differences in education* as well as *decision making about food*, although the loadings of these items were only 0.22 and -0.25 respectively; this factor was labelled *education and the house*. The negative direction of *decision making about food* compared to *education* represents an inverse relationship between the two items: as a woman is more educated relative to her male partner, she is less likely to make decisions about food to cook at home. This may reflect greater mobility outside of the home secondary to education and subsequent employment (Wang, et al., 2014), or greater male input into household decisions about food.

The items relating to *age difference* and *household head* did not load onto any of the four retained factors. On examination of the factors loadings, despite rotation, these items did not load in any meaningful pattern onto the five factors. This was not due to poor variation, as the items – both binary – displayed moderate variability in their scores over the survey population. Therefore, it is possible that the failure of these items to load onto the factors is because they do not represent constructs that are linked to or influenced by any of the other indicators contained in this model.

Table 19 sets out the domains and indicators identified for the GE Score from both qualitative research and through EFA. Both sets of domains identified, and their associated indicators and weightings, are presented beside each other to help facilitate comparison. The left-hand side of the table, qualitatively derived indicators and domains, sets out the three domains and 18 indicators of the GE Score. Equal weighing has been given to each of the indicators within their relative domains, for the purpose of comparison. The right-hand side of the table, domains and indicators derived from EFA, demonstrates the identified five factors and 18 indicators, along with their loading weights.

In the GE score items, *household headship*, and *age differences* did not load onto any factor. The *household headship* item did not load onto any of the factors, and most likely represents a construct extrinsic to the model, possibly at another level of analysis (household versus partnership); thus, I decided to drop this altogether. Although I observed significant power imbalances secondary to age differences in my qualitative research (Chapter 3, Table 4), this item was not associated with differences in decision-making items (see Table 14, above). Age difference in couples where the female is younger have been demonstrated to be associated with power differences in contraceptive decision-making (Grady, et al., 2010) (Volpe, et al., 2013). Because the decision-making items from ENDES 2015, inclusive of contraception, may partially represent interpersonal power differences, I decided that it would be appropriate to drop the *age difference* item and keep the *decision making* items.

Table 19: Comparison of GE domains and items between qualitative analysis and EFA

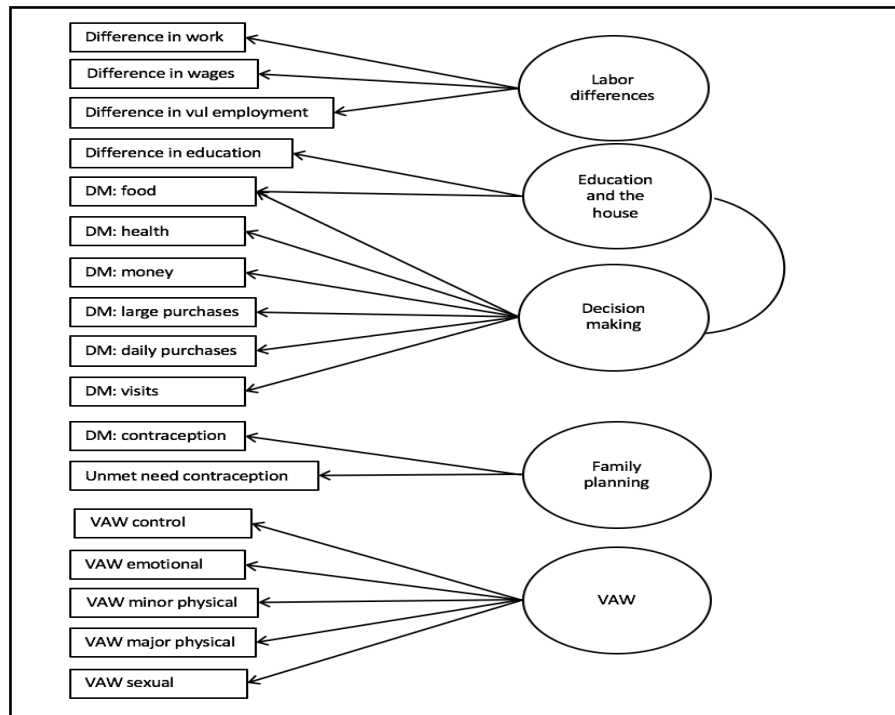
Qualitatively derived Indicators & Domains			Domains and indicators derived from EFA		
DOMAIN	ITEMS	Weight	DOMAIN	ITEMS	Weight
Partner differences	Difference in education	0.25	Labour differences	Wage differences	0.47
	Difference in employment	0.25		Difference in employment	0.77
	Differences in vulnerable employment	0.25		Differences in vulnerable employment	0.77
	Differences in wages	0.25	Education and the house		
	Age differences >10 years			Difference in education	0.22
	Household headship			Decision on food to cook	-0.25
Decision-making	Contraception	0.14	Decision-making		
	Husband's money	0.14		Husband's money	0.30
	Healthcare	0.14		Healthcare	0.42
	Large household purchases	0.14		Large household purchases	0.55
	Daily household purchases	0.14		Daily household purchases	0.56
	Visit to family	0.14		Visit to family	0.47
	Food to cook	0.14		Food to cook	0.23
VAW	Control	0.2	VAW	If she goes out without telling	0.55
	Emotional	0.2		If she neglects the children	0.66
	Minor physical	0.2		If she argues with him	0.68
	Major physical	0.2		If she refuses sex	0.61
	Sexual	0.2		If she burns the food	0.51
-			Contraception decision & use	Decision maker contraception*	0.28
				Unmet need for contraception^	0.28

\* The decision maker for contraception item shifted to a new domain, labelled "contraception decision & use"

^ Unmet need for contraception was reclassified to the GE Score items and belongs to the domain, labelled "contraception decision & use"

Once again, with the results of the EFA, I was able to arrange the original items by their underlying factors in a pathway diagramme (Figure 12 below), which will help guide the Confirmatory Factor Analysis described in Section 5.4.3 below. The rectangular boxes represent the items retained in the model following EFA. The oblong shapes represent the underlying factors that explain the structure of the dataset. The arrows demonstrate how the factors relate to each item. The curved line between *education* and *decision-making* factors represent some cross-associations between the factors, as identified originally in Table 15 above.

Figure 12: GE Score – items arranged by five underlying factors



To check that the selected constructs for the WA and GE scores held, I performed Confirmatory Factor Analysis (CFA). As opposed to the exploratory nature of the factor analysis presented above, CFA is commonly used to confirm or refute a pre-identified factor structure (Suhr, 2006). It will therefore allow a further degree of confidence and clarity in the aggregation of items into an overall score. This will be explained further in Section 5.4.3 below.

### 5.4.3 Confirmatory Factor Analysis

As opposed to EFA, CFA is used to verify pre-existing theory rather than generate new theory. CFA is a statistical technique that allows the researcher to test a hypothesised relationship between the observed items and their underlying latent constructs (Suhr, 2006). In comparison to EFA, CFA requires a clear *a priori* hypothesis of the structure of the latent constructs underlying the observed items. This information can be derived from preceeding statistical analysis, qualitative

observation, or existing literature (Flora & Flake, 2017). In this instance, I will use CFA to refine the pre-specified factor structure that was identified through qualitative research and defined through EFA, described above.

There is no consensus about the sequential use of EFA and CFA within the same dataset. Both EFA and CFA are derived from the common factor model, a linear regression model that uses observed outcome variables to estimate underlying predicting factors (Flora & Flake, 2017). Therefore, it is reasonable to conclude that both strategies would reach the same general conclusions about the factor structure of a dataset (McArdle, 2011). As opposed to EFA, however, CFA is often constrained to produce a restricted solution, where there are no cross-loadings between items in the factor matrix (Flora & Flake, 2017). This means that EFA and CFA may not agree perfectly. In general, the use of EFA and CFA as complimentary processes to clarify an underlying factor structure in observed variables is accepted: EFA to explore the structure of the dataset when there are no a priori understandings, and CFA when there are. In some instances, EFA may be used to follow-up a poor-fitting CFA model, instead of post-hoc adjustments to the CFA model itself (Schmitt, 2011). In other instances, EFA may be used as a heuristic precursor to CFA, in order to tentatively establish an underlying structure (Brown, 2015; Gerbing & Hamilton, 1996). In this thesis, I chose to emulate the latter, employing EFA to first understand the underlying structure of the data and CFA to further refine these factors.

CFA is a form of structural equation modelling (SEM). It relies on a set of statistical tests to determine the adequacy of the model fit to the data:

- The chi-square test indicates the difference between expected and observed covariance matrices, with a value closer to zero indicating a smaller difference between the expected and observed (Suhr, 2006).
- The comparative fit index (CFI), a discrepancy function adjusted for sample size, should have a value of 0.90 or greater to indicate an acceptable model fit (Hu & Bentler, 1999; Suhr, 2006).
- The root mean square error of approximation (RMSEA) identifies model residuals, and a value of 0.06 or less is representative of an adequate model fit (Hu & Bentler, 1999; Suhr, 2006).

#### 5.4.3.1 Confirmatory factor analysis for the Women's Achievement (WA)

##### Score

I used 19 items and their grouping domains derived from EFA, in Confirmatory Factor Analysis (CFA) of the WA score. The items and domains are as follows:

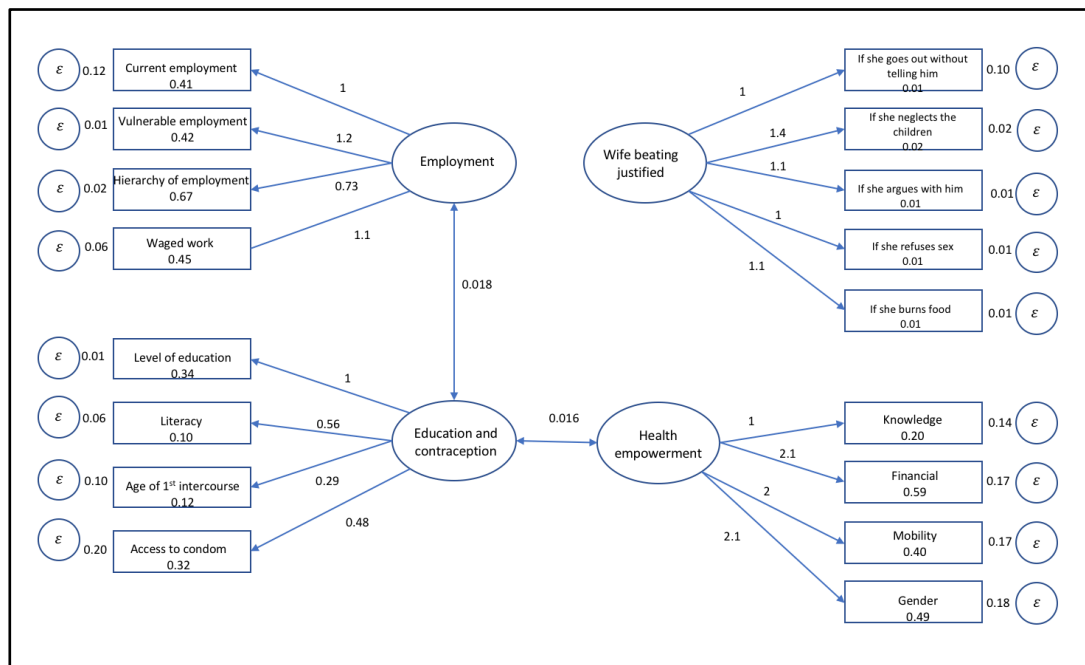
1. Education and choice
  1. Educational attainment (categorical; highest level of schooling achieved)
  2. Literacy (categorical; illiterate, partially literate, literate)
  3. Access to condom if necessary (binary)
  4. Age at first union (binary, <20 years cut-off)
2. Employment
  5. Currently working (binary yes/no response)
  6. Vulnerable employment (categorical; not working, vulnerable employment, non-vulnerable employment)
  7. Hierarchy of employment (categorical; classification levels 1, 2, 3, 4)
  8. Wages for work (categorical; not working, unpaid, paid in-kind, mixture, or with cash)
3. Health empowerment
  9. Knows where to go to get healthcare (binary)
  10. Getting money to for healthcare (binary)
  11. Not wanting to go alone to health facility (binary)
  12. No female health providers (binary)
4. Age at marriage and first intercourse
  13. Age at first marriage (binary, <20 years cut-off)
  14. Age at first intercourse (binary, <15 years cut-off)
5. Permissive attitudes to wife beating
  15. If she goes out without telling him (binary)
  16. If she neglects the children (binary)
  17. If she argues with him (binary)
  18. If she refuses sex (binary)
  19. If she burns the food (binary)



I ran the CFA for the WA Score by specifying the above five latent constructs (*employment, education and choice, health empowerment, age at marriage and first intercourse and attitudes to wife beating*) with their associated observed values. I estimated the model using the maximum likelihood method. When running the model, I found that there was an issue with non-convergence. Through running various iterations of the model, I found that the item *age of first marriage* lacked discriminatory value due to its equal distribution between the two outcome categories (married below 20 years, or married at or above 20 years). So, this item was dropped from the model. The item *age of first intercourse* had sufficient discriminatory value and was therefore retained in the model, replacing *age of first marriage* in the *education and choice* domain (Figure 5).

Running this model, I found that the RMSEA score was 0.047, under the accepted cut-off of 0.06 for goodness of fit, and the CFI was 0.96, over the accepted cut-off for goodness of fit. Therefore, it can be concluded that this model fits the data well. The final model is visualised in Figure 13 below.

Figure 13: Model fit and estimations following confirmatory factor analysis, WA Score



#### 5.4.3.2 Confirmatory factor analysis for Gender Equality (GE) Score

I used the following 18 items and their grouping domains derived from exploratory factor analysis, in Confirmatory Factor Analysis (CFA) of the GE score:

Gender equality:

##### 1. Labour differences

1. Difference in work status (categorical, differences between currently working status)
2. Difference in wages (partner earns more, less, about the same)
3. Difference in vulnerable employment (categorical; the difference in vulnerable employment status between individual woman and her partner)

##### 2. Decision-making

4. Decision-making, healthcare (categorical; partner, joint, self)
5. Decision-making, what to do with husband's money (categorical; partner, joint, self)
6. Decision-making, large household purchases (categorical; partner, joint, self)
7. Decision-making, small household purchases (categorical; partner, joint, self)
8. Decision-making, visits to family (categorical; partner, joint, self)
9. Decision-making, food to cook (categorical; partner, joint, self)

##### 3. Violence against women

10. Control issues identified with partner (ordinal)
11. Experience of emotional violence with partner (binary)
12. Experience of minor physical violence with partner (binary)
13. Experience of major physical violence with partner (binary)
14. Experience of sexual violence with partner (binary)

##### 4. Education and home life

15. Difference in educational attainment (categorical; difference in highest level of schooling achieved between individual woman and her partner)
16. Decision making, food to cook (categorical; partner, joint, individual)

##### 5. Contraception decision-making and use

17. Decision making, contraception use (categorical; partner, joint, individual)
18. Unmet need for family planning (binary; defined as the percentage of women who do not want to become pregnant but are not using contraception)

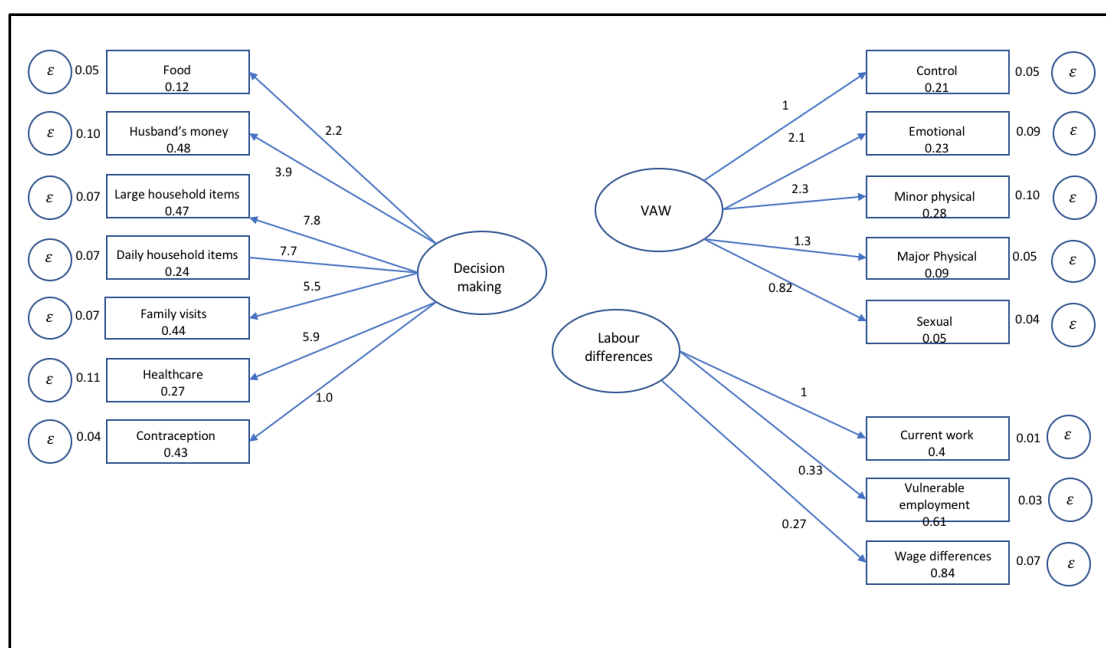
I ran the CFA for the GE Score by specifying the above five latent constructs (*labour differences, decision-making, education and the house, contraception decision making and use, and VAW*) with their associated observed values. I estimated the model using the maximum likelihood method. However, using this input, the model did not converge. Through running various iterations of the model, I identified that inclusion of the *contraception decision-making and use* factor led to model non-convergence. I therefore dropped this factor from the model, and reverted to the original decision making domain derived from qualitative information as detailed in Table 18 above (left column), consisting of *contraception decision making plus decision making in healthcare, what to do with husband's money, large household purchases, small household purchases, family visits and food to cook*. Inclusion of the *education differences* item in the *home life* factor also led to model non-convergence. On further exploration of this, *differences in education* were not correlated with other labour differences (see Table 14). This may be explained by high rates of informal labour in Peru which may not be linked to education levels (FORLAC, 2014). In the ENDES 2015 dataset, level of education and current employment, and differences in education and differences in employment were not well correlated. Given these findings, I decided to drop the *differences in education* item. This post-hoc modification to the CFA model left three domains and the following items:

1. Labour differences
  - a. Difference in work status (categorical, differences between currently working status)
  - b. Difference in wages (partner earns more, less, about the same)
  - c. Difference in vulnerable employment (categorical; the difference in vulnerable employment status between individual woman and her partner)

2. Decision making
  - a. Decision making, healthcare (categorical; partner, joint, individual)
  - b. Decision making, what to do with husband's money (categorical; partner, joint, self)
  - c. Decision making, large household purchases (categorical; partner, joint, self)
  - d. Decision making, small household purchases (categorical; partner, joint, self)
  - e. Decision making, visits to family (categorical; partner, joint, self)
  - f. Decision making, food to cook (categorical; partner, joint, self)
  - g. Decision making, contraception (categorical; partner, joint, self)
3. VAW
  - a. Control issues identified with partner (ordinal)
  - b. Experience of emotional violence with partner (binary)
  - c. Experience of minor physical violence with partner (binary)
  - d. Experience of major physical violence with partner (binary)
  - e. Experience of sexual violence with partner (binary)

Running this model, I found that the RMSEA score was 0.04, under the accepted cut-off of 0.06 for goodness of fit, and the CFI was 0.92, over the accepted cut-off for goodness of fit. This means that the model fits the data well. The final model is visualised in Figure 14 below.

Figure 14: Model fit and estimations following confirmatory factor analysis, GE Score



### 5.4.3.3 Summary of confirmatory factor analysis results

Tables 20 and 21 provide a summary of the items and domains in the WA and GE Scores, and how they were selected and processed through qualitative grouping, exploratory factor analysis, and confirmatory factor analysis. The final items and domains are detailed in the final columns of Tables 19 and 20, and will be used in the WAGE Score construction going forward.

Appendix H provides a chapter-by-chapter summary of the WAGE score construction, as a reference guide.

So far, I have developed a model using EFA and refined the hypothesised models of WA and GE further through the process of CFA. Now that the model has been appropriately fitted through CFA, I will proceed to build the WA, GE and WAGE scores themselves, taking into consideration the factor structure and weighting identified through the above processes.



Table 20: Summary of the processing and selection of WA Score items and domains – qualitative, exploratory and confirmatory factor analysis

Qualitatively derived Indicators and domains		Domains and indicators derived from EFA		FINAL DOMAINS AND INDICATORS, CFA	
DOMAIN	ITEMS	DOMAIN	ITEMS	DOMAIN	ITEMS
Education	Educational attainment	Education and choice	Educational attainment	Education and choice	Educational attainment
	Literacy		Literacy		Literacy
Employment	Currently working		Access to condom if necessary*		Access to condom if necessary
	Vulnerable employment		Age at first marriage***		Age at first sexual intercourse ^^
	Hierarchy of employment	Employment	Currently working	Employment	Currently working
	Wages for work		Vulnerable employment		Vulnerable employment
Health access and family planning	Visit to health facility within the last 12months		Hierarchy of employment		Hierarchy of employment
	Coverage by health insurance		Wages for work		Wages for work
	Unmet need for FP	-	-	-	-
	Knows of contraception method		-		-
	Access to condom if necessary		-		-
			-		-
Health empowerment	Knows where to go	Health empowerment	Knows where to go to get healthcare	Health empowerment	Knows where to go to get healthcare
	Getting permission to go		Getting money to for healthcare		Getting money to for healthcare
	Getting money to go		Not wanting to go alone		Not wanting to go alone
	Not wanting to go alone		No female health providers		No female health providers
	No female health providers				
Age and maturity**	Age at first marriage	Age at marriage and first intercourse ^	Age at first marriage	-	-
	Age at first intercourse		Age at first intercourse		-
Permissive attitudes to wife beating	If she goes out without telling	Permissive attitudes to wife beating	If she goes out without telling	Permissive attitudes to wife beating	If she goes out without telling
	If she neglects the children		If she neglects the children		If she neglects the children
	If she argues with him		If she argues with him		If she argues with him
	If she refuses sex		If she refuses sex		If she refuses sex
	If she burns the food		If she burns the food		If she burns the food

EFA: \* The access to condom item shifted to a new domain, labelled “education and choice”

\*\* The domain “Age and maturity” was renamed to “Age at marriage and first intercourse” to more accurately reflect the domain

\*\*\* The age at first marriage item loaded onto both the ‘education and choice’ and the “Age at marriage and first intercourse” domains.

CFA: ^ The domain “age at marriage and first intercourse” was dropped because of model non-convergence

^^ The item age of first sexual intercourse replaced the item age of first marriage in the “education and choice” domain

Table 21: Summary of the processing and selection of GE Score items and domains – qualitative, exploratory and confirmatory factor analysis

Qualitatively derived Indicators and Domains		Domains and indicators derived from EFA		FINAL DOMAINS AND INDICATORS, CFA	
DOMAIN	ITEMS	DOMAIN	ITEMS	DOMAIN	ITEMS
Partner differences	Difference in education	Labour differences	Wage differences	Labour differences	Wage differences
	Difference in employment		Difference in employment		Difference in employment
	Differences in vulnerable employment		Differences in vulnerable employment		Differences in vulnerable employment
	Differences in wages	Education and the house	-	-	-
	Age differences >10 years		Difference in education <sup>^</sup>		-
	Household headship		Decision on food to cook <sup>^^</sup>		-
Decision-making	Contraception	Decision-making	-	Decision-making	Contraception <sup>^^^</sup>
	Husband's money		Husband's money		Husband's money
	Healthcare		Healthcare		Healthcare
	Large household purchases		Large household purchases		Large household purchases
	Daily household purchases		Daily household purchases		Daily household purchases
	Visit to family		Visit to family		Visit to family
	Food to cook		Food to cook		Food to cook
VAW	Control	VAW	If she goes out without telling	VAW	If she goes out without telling
	Emotional		If she neglects the children		If she neglects the children
	Minor physical		If she argues with him		If she argues with him
	Major physical		If she refuses sex		If she refuses sex
	Sexual		If she burns the food		If she burns the food
-		Contraception decision & use	Decision maker contraception <sup>*</sup>	-	-
			Unmet need for contraception <sup>**</sup>		-

EFA:

\* The decision maker for contraception item shifted to a new domain, labelled "contraception decision & use"

\*\* Unmet need for contraception was reclassified to the GE Score items and belongs to the domain, labelled "contraception decision & use"

CFA:

<sup>^</sup> The differences in education item led to model non-convergence and was not associated with other constructs so was dropped

<sup>^^</sup> The decision on food to cook item remained in the "decision-making" domain

<sup>^^^</sup> The decision maker for contraception item shifted to the "decision making" domain and the unmet need for contraception item was dropped



## 5.5 WAGE Score construction

The WAGE Score construction comprised three stages. I started with the items and factor groupings as defined by EFA and refined by CFA. I then combined the items by domain using weights defined by the CFA, over WA and GE scores. Finally, I combined the WA and GE scores into the final WAGE score.

### 5.5.1 WA and GE Indicators used in WAGE Score construction

The 32 final items used in the WA and GE score construction are described below.

The women's achievement (WA) score contained four domains and 17 items:

1. Education and choice
  1. Educational attainment (categorical; highest level of schooling achieved)
  2. Literacy (categorical; illiterate, partially literate, literate)
  3. Access to condom if necessary (binary)
  4. Age at first intercourse (binary, <20 years cut-off)
2. Employment
  5. Currently working (binary yes/no response)
  6. Vulnerable employment (categorical; not working, vulnerable employment, non-vulnerable employment)
  7. Hierarchy of employment (categorical; classification levels 1, 2, 3, 4)
  8. Wages for work (categorical; not working, unpaid, paid in-kind, mixture, or with cash)
3. Health empowerment
  9. Knows where to go to get healthcare (binary)
  10. Getting money to for healthcare (binary)
  11. Not wanting to go alone to health facility (binary)
  12. No female health providers (binary)
4. Permissive attitudes to wife beating
  13. If she goes out without telling him
  14. If she neglects the children

15. If she argues with him
16. If she refuses sex
17. If she burns the food

The gender equality (GE) score contained three domains and 15 items:

1. Labour differences
  1. Difference in work status between partners (categorical, differences between currently working status)
  2. Difference in vulnerable employment between partners (categorical; the difference in vulnerable employment status)
  3. Partner earns more than respondent (categorical; more, less, about the same)
2. Decision making
  4. Decision making, healthcare (categorical; partner, joint, individual)
  5. Decision making, what to do with husband's money (categorical; partner, joint, individual)
  6. Decision making, large household purchases (categorical; partner, joint, individual)
  7. Decision making, small household purchases (categorical; partner, joint, individual)
  8. Decision making, visits to family (categorical; partner, joint, individual)
  9. Decision making, food to cook (categorical; partner, joint, individual)
  10. Decision making, contraception (categorical; partner, joint, individual)
3. VAW
  11. Control issues identified with partner (ordinal)
  12. Experience of emotional violence with partner (binary)
  13. Experience of minor physical violence with partner (binary)
  14. Experience of major physical violence with partner (binary)
  15. Experience of sexual violence with partner (binary)

### 5.5.2 Indicator weighting and aggregation through confirmatory factor analysis

As discussed in Chapter 2, various approaches to indicator weighting have been used by international gender indexes. Indexes such as the GEI use an equal-weight approach (Social Watch, 2010), whereas approaches such as the SIGI aggregate indicators via a weighting scheme derived from principal component analysis (PCA) (Branisa, et al., 2014). Like PCA, factor analysis is a data reduction technique that identifies underlying latent constructs in the dataset and arranges items into domains based on the strength of association between items. The use of EFA was justified in this circumstance because it allows the combination of continuous and categorical items to understand the underlying structure of the data, to group indicators according to their degree of correlation, and to ensure that the data is combined in a way that does not assume an underlying structure (Branisa, et al., 2014; Jolliffe, 2014; OECD Development Centre, 2014).

I took an approach to indicator weighting consistent with the methodology adopted by Bransia, Klasen and colleagues in the construction of the SIGI (Branisa, et al., 2014; OECD Development Centre, 2014). However, instead of using PCA by a pre-specified domain, I decided to use factor analysis to both group my items into domains which represented underlying latent constructs in the dataset, and to weight individual indicators. The specific factor loadings of each retained item were then used to weight and combine items by domain. The creation of scores based on factor analysis models has also previously been used in multidimensional measures of agency, where the predicted scores were summed across domains before the domains were combined (Gram, et al., 2017). Therefore, my approach was consistent with previous factor analysis-based approaches to weighting and combining items by domain and then into an overall score.

The overall WA and GE scores were then calculated by taking an un-weighted average of the linear function of the domains.

The WA Score was calculated using the following formula:

$$WA = \frac{EDU+EMP+HE+WBJ}{4} \quad (17)$$

Where EDU = weighted combination of the values of the *education and choice* domain  
(*education, literacy, age first intercourse, access to condom*)

EMP = weighted combination of the values of the *employment* domain  
(*work, vulnerable employment, hierarchy of employment, wages*)

HE = weighted combination of the values of the *health empowerment* domain  
(*knowledge, financial, mobility, gender*)

WBJ = weighted combination of values of the *attitudes to wife beating* domain  
(*five scenarios of wife beating justified*)

The GE Score was calculated using the following formula:

$$GE = \frac{DIFF+DM+VAW}{3} \quad (18)$$

Where DIFF = weighted combination of the values in the *labour difference* domain  
(*differences in work, vulnerable employment, wages*)

DM = weighted combination of the values of the *decision-making* domain  
(*decision making in health, contraception use, money, large and daily purchases, visits and food*)

VAW = weighted combination of the values of the VAW domain  
(*experience of VAW control, emotional, minor/major physical and sexual*)

### 5.5.3 Combining achievement and equality into the WAGE Score

To demonstrate the summative effects of both achievement and equality in relation to the individual woman, WA and GE scores were directly combined by summing the two components:

$$WAGE = WA_i + GE_i \quad (19)$$

Such that the overall WAGE score could be expressed as:

$$WAGE_i = \frac{\sum_{i=1}^n (WA_i + GE_i)}{n} \quad (20)$$

Both scores were designed to be of the same direction and scale, where values closer to zero reflected a smaller gap and/or greater equality - and thus were more favourable – and values further away from zero reflected a larger gap and great inequality – and thus were less favourable. The reference point of the WA score design and development was the individual woman, and larger positive values represented female disadvantage. The direction of the GE score also ensured that positive values represented relative female disadvantage and negative values represented relative female advantage.

## 5.6 Results of the WA, GE and WAGE Scores

### 5.6.1 WA Score Results

Figure 15 presents the distributions of the WA Score domains, which are non-normal. The labour domain (*normal\_LABOUR*) demonstrates a tri-modal distribution, whereas the *education and choice* domain (*normal\_EDUCONT*) demonstrates a distribution which is clustered around six distinct levels, reflecting the nature of binary or categorical data. The *health empowerment* domain demonstrate a more even distribution, although the distribution is skewed (driven by a dominance of zero-scores, representing those who were fully empowered on their selected health empowerment indicators). The most striking distribution was found in the *attitudes to wife beating* domain (*normal\_WBJ*), which was very heavily left skewed. This reflects a large number of responses in the survey that were opposed to wife beating. Overall, the distributions of the four WA domains has led to a left-skewed, bi-modal distribution of the WA Score, seen in Figure 16 below.

Figure 15: Histogram of labour, education and choice, health empowerment and attitudes to VAW factor scores

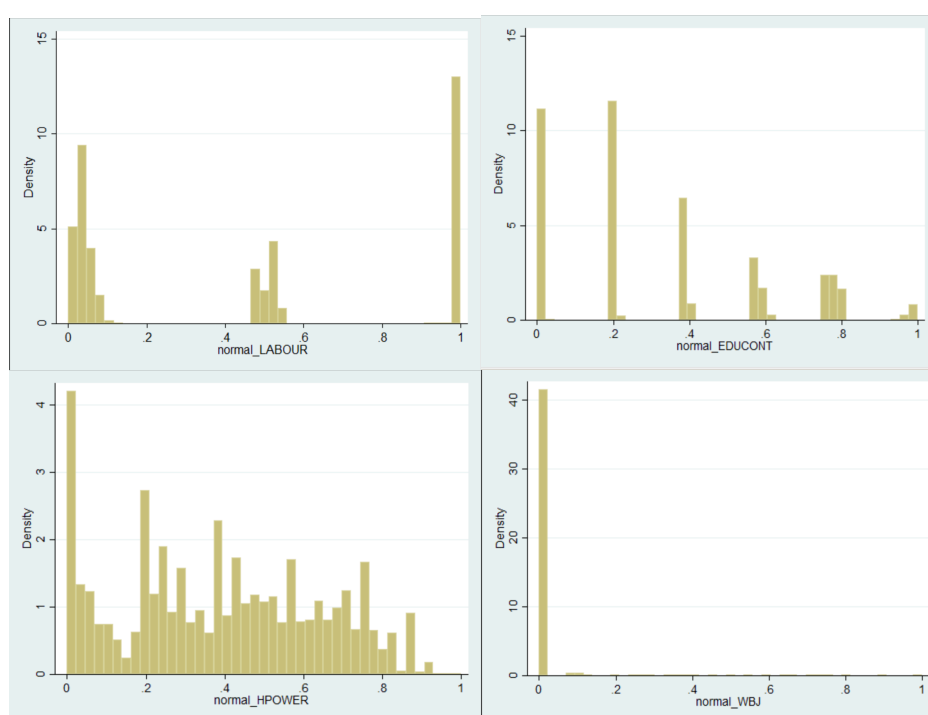
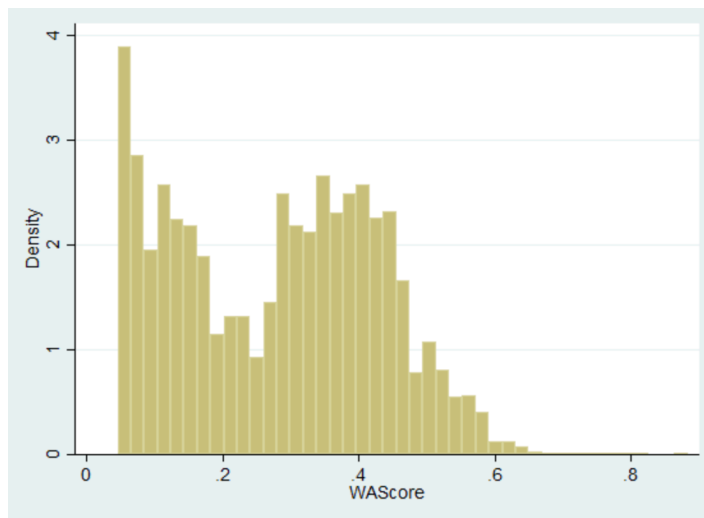


Figure 16: Histogram WA Score distribution



The skewed nature of the data is a reflection of the type of item responses and the nature of some items such as attitudes towards violence. It is therefore not an unexpected – or problematic – finding. In fact, the distribution of the data as it stands is a valuable insight into the current state of women’s achievements in Peru. The implications of this skewed distribution do however warrant further consideration, and will be discussed further in Section 5.7, below. In terms of presenting the results of the WA, GE and WAGE scores, I have presented both the mean and standard deviation (SD), and the median and interquartile range (IQR).

The overall WA Score value was 0.28 (SD 0.15), which aligned with the median value of 0.29 (IQR 0.13, 0.40) (Table 22). The mean of the *labour* domain was 0.43 (SD 0.41), with a median of 0.49 (IQR 0.04, 0.99). In *education and choice*, the mean value was 0.33 (SD 0.29) and median 0.20 (IQR 0.01, 0.58). The mean value of *health empowerment* was 0.33 (SD 0.10), and median value 0.33 (IQR 0.26, 0.42). Finally, the mean value of the *attitudes to wife beating* domain was 0.01 (SD 0.07) and median 0.0 (IQR 0.0, 0.0) (all with ranges between 0 and 1). Correlation between domains and overall indicators was strong in most areas, and weak/moderate between the VAW and the WA score (Table 23).

Table 22: The mean and median of the WA Score and WA Score domains

DOMAIN	WA Score (n=20,101)					
	Mean	SD	Min, Max	Median	IQR lower	IQR, upper
Labour	0.43	0.41	0,1	0.49	0.04	0.99
Education and choice	0.33	0.29	0.1	0.20	0.01	0.58
Health Empowerment	0.33	0.10	0.1	0.33	0.26	0.42
Attitudes to Wife Beating	0.01	0.07	0.1	0.0	0.0	0.0
OVERALL	0.28	0.15	0.04, 0.88	0.29	0.13	0.40

Table 23: WA Score and WA domain correlation, Pearson product-moment correlation coefficients

		WA Score and components				
		WA	Labour	Education & choice	Health Empowerment	Wife Beating
WA Score and components	WA	1.00				
	Labour	0.71	1.00			
	Education	0.75	0.21	1.00		
	Health Empower	0.66	0.09	0.55	1.00	
	Wife Beating	0.17	0.02	0.08	0.07	1.00

## 5.6.2 GE Score Results

Figure 17 presents histograms of the distribution of the three domains of the GE Score. These distributions were also non-normal. The *labour differences with partner* domain (*normal\_DIFF*) demonstrates a distinct bi-modal distribution, that is probably reflective of the nature of binary responses to employment items. The *decision-making* domain (*normal\_DM*) demonstrate a more even distribution, although the distribution is slightly left-skewed. Similarly to the attitudes to wife beating domain, the *violence against women* domain (*normal\_VAW*) was also left skewed. This reflects that many women in ENDES 2015 reported no or very few experiences of violence with their current partner.<sup>16</sup> This may also be a reflection of the fact that the items in the *violence against women* domain asked only about violence in the current partnership, rather than quantifying lifetime prevalence.

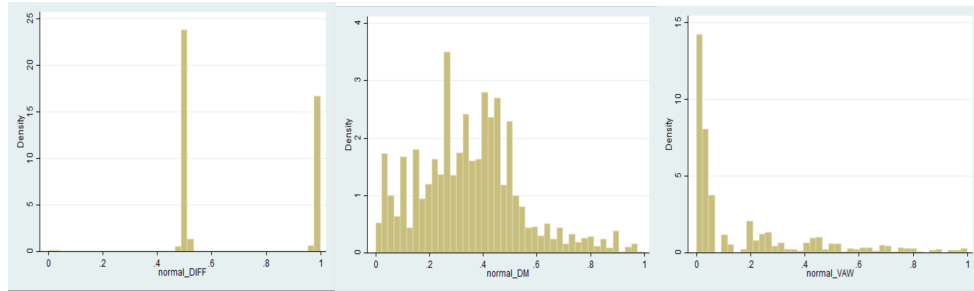
As discussed above, I will discuss the implication of the skewed distribution further in Section 5.7 below. I presented both mean and median values of the domains and

<sup>16</sup> This is inconsistent with current Peruvian data on lifetime prevalence of violence (Garcia-Moreno, et al., 2006) and will be discussed further in Chapter 7.

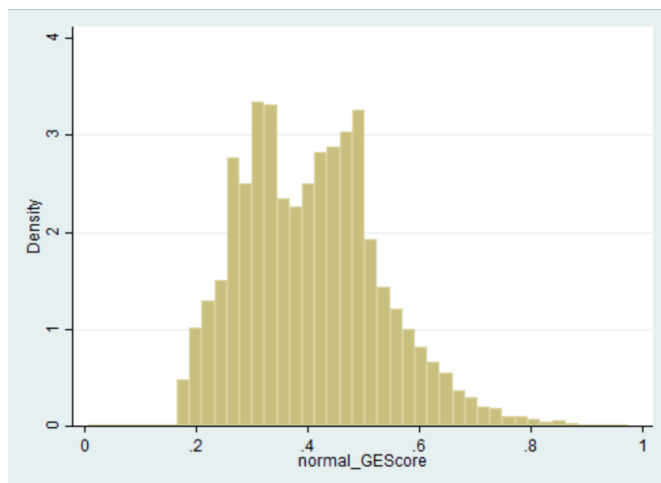


the overall GE score as a way to represent the central tendency of the non-normally distributed data.

*Figure 17: Histogram of labour differences, education choice, health empowerment and attitudes to VAW factor scores*



*Figure 18: Histogram, GE Score distribution*



The overall GE Score mean value was 0.41 (SD 0.13) and median value was 0.40 (IQR 0.31, 0.49) (Table 23). The mean of the labour differences domain was 0.70 (SD 0.24) and median was 0.51 (IQR 0.50, 0.99). In decision making, the mean score was 0.35 (SD 0.19), and median 0.34 (IQR 0.23, 0.46). The VAW domain had a mean value of 0.17 (SD 0.23) and median of 0.03 (IQR 0.0, 0.26). Correlation between domains and overall indicators was moderate to strong in all areas (Table 25).

Table 24: GE Score, presented by domain and by mean and median values

DOMAIN	GE Score (n=20,101)					
	Mean	SD	Min, Max	Median	IQR lower	IQR, upper
Labour differences with partner	0.70	0.24	0,1	0.51	0.50	0.99
Decision making	0.35	0.19	0.1	0.34	0.23	0.46
VAW	0.17	0.23	0.1	0.03	0.0	0.26
OVERALL	0.41	0.13	0.01, 0.97	0.40	0.31	0.49

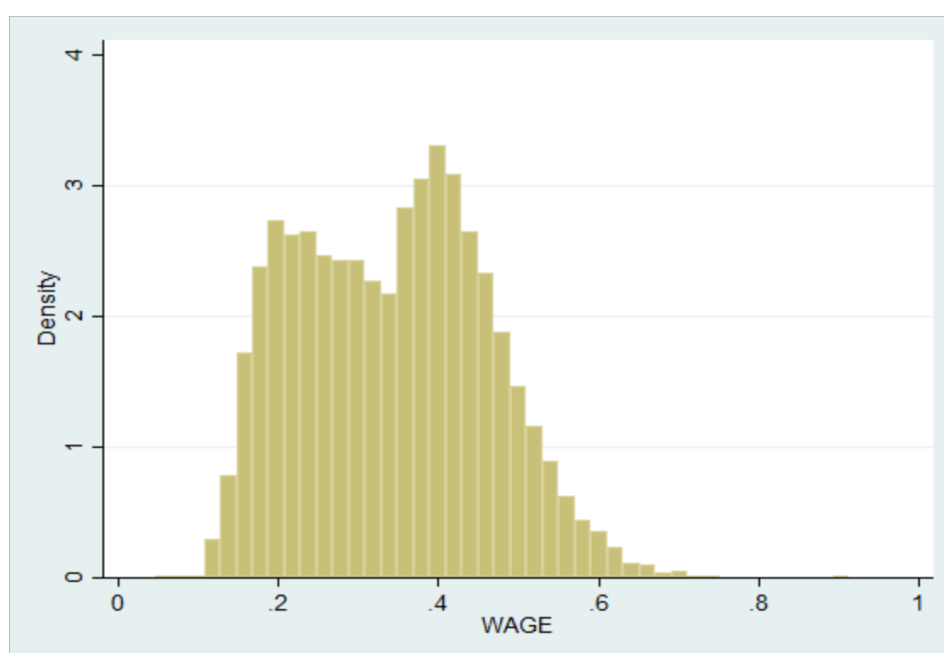
Table 25: GE Score and GE domain correlation, Pearson product-moment correlation coefficients

		GE Score and components			
		GE	Differences	Decision making	VAW
GE Score and components	GE	1.00			
	Differences	0.61	1.00		
	Decision making	0.49	0.03	1.00	
	VAW	0.56	0.06	0.04	1.00

### 5.6.3 WAGE Score Results

The overall WAGE score was calculated by the sum of the WA and GE scores. The resulting mean WAGE Score was 0.34 (SD 0.12), which aligned with the median value of 0.35 (IQR 0.24, 0.43). This combined score had a less skewed distribution, as seen Figure 19.

Figure 19: WAGE Score Distribution



## 5.7 Discussion

This chapter has presented steps towards the construction of the WAGE score. First, I prepared the dataset by considering the coding of items, exclusion of certain participants, and dealt with missing data through CCA and MI. Second, I detailed the calculation of item-gaps for each of the indicators included in the WA and GE scores. Third, I performed EFA and CFA to refine the models for WA and GE scores. I used the factor loadings to combine the items into domains and subsequently into the overall WAGE Score.

The WAGE score was then constructed in three parts. First, items representing selected women's individual achievements were aggregated by domains into a Women's Achievement (WA) score. Second, the Gender Equality (GE) score was constructed by aggregating items representing differences between partners, imbalances in decision-making, and experiences of violence. Third, these scores were combined into a single indicator that valued both achievement and equality (WAGE Score). The weightings and combinations of the items were derived from EFA and CFA. In the discussion below, I will reflect on achievement and equality gaps, and then discuss the WA Score, the GE Score, and the WAGE Score findings, before commenting on the limitations of the above methodology. This will lead into Chapter 6, where I will further interrogate the WAGE Score results.

### 5.7.1 Achievement and Equality Gaps

A limitation of some current measures of gender equality is that they are blind to overall levels of human development or achievement (Cueva Beteta, 2006; Dijkstra & Hanmer, 2000; Kabeer, 2001). On the other hand, measures of achievement or development, when interpreted alone, can be blind to inequality. The WAGE score methodology was designed to ensure that *both* achievement *and* equality were taken into consideration, by first calculating the WA and GE components and then combining them into the WAGE score. This ensured that, although equality was valued, it was not at the expense of being blind to overall levels of achievement. Furthermore, this technique places individual women and their achievements at

the centre of the analysis, and ensures that this is prioritised in the context of an overall score.

Items comprising the WA and GE scores represented the *gaps* between *actual* and *optimal* individual achievements or equality. These gaps were determined item by item at the individual level, before being combined into an overall score. Once combined, the WA score represents the gap between actual and ideal achievements in the areas of *employment, education and choice, health empowerment, and attitudes to wife beating*. The GE score represents the gap between an ideal scenario of complete equality and any actual inequality in the areas of *labour differences, decision making, and VAW*. The WAGE, therefore, represents the overall gaps between an individual's lived experiences and an 'ideal' scenario of both high achievement *and* complete equality over these domains. By highlighting gaps, this approach enables a commentary about how far away from the 'ideal' scenario an individual was positioned. The WAGE Score components were aggregated horizontally, meaning that the scores were first calculated at the individual level, and then aggregated over the dataset.

For each item-gap, I chose to use a benchmark of the maximum possible score as the as the comparator level. Although this benchmark could represent a range of values, from the population average to an acceptable threshold of achievement, I chose to use the maximum possible score in each item as the cut-off to represent the maximal possible human achievement in each item. This became an aspirational goal that would reflect a universally 'ideal' benchmark in each item. Because ENDES item coding and measurement is standardised worldwide, choosing the maximum item score means that the benchmark/cut-off and the subsequent item-gaps derived from this could potentially be compared across settings internationally.

An alternative approach to quantifying women's achievements and empowerment at the individual level is through using a threshold model, described by Alkire et al (2013) in the Women's Empowerment in Agriculture Index. Here, an individual is deemed 'empowered' if they are considered to have reached a threshold of 'adequacy' in four of the five domains of empowerment (decisions about

agricultural production, access to and decision-making power about productive resources, control of use of income, leadership in the community, and time allocation) (ibid.) . Gender parity is then determined by the proportion of women who perform as well as their partner in these domains. Whilst this methodology facilitates the exploration of both achievement and equality, it limits the depth and breadth of measurement, first by reducing the dimensions of individual empowerment to a binary cut-off, and second by applying a population head-count to women who achieve gender parity rather than quantifying the degree of inequality they face.

### 5.7.2 WA Score

The WA score was calculated by combining domains of *employment, education and choice, health empowerment, and attitudes to wife beating*. Compared to the domains identified through qualitative analysis, these domains were restricted to indicators collected and reported by ENDES and the DHS Programme. These were further restricted from 23 to 19 through the process of EFA and CFA, based on the underlying structure of the dataset. Based on both of these restrictions, the indicators and domains selected to represent WA were focused on economic development, health and violence, without capturing equally important measures of domestic responsibility, time-use, intra-household resource allocation, community participation, and leadership. This means the WA score reflects a limited, albeit important, set of indicators related to gendered achievements, which are in line with dominant global discourses on women, gender and development. It is however important to note that this is not a complete picture and that there remains a need to collect broader and more complete information on women's achievement and empowerment indicators going forward.

The strongest performing domain in the WA score – that with the smallest gap – was attitudes to wife beating. This represented a near-universal assertion by interview participants that wife beating was not permissible in the five scenarios presented to them. Whilst it could be argued that anti-violence attitudes are a strong and necessary pre-condition to violence prevention (World Health Organisation, 2010), they did not translate into the same low rates of experiences

of partner violence reported in the GE score. The two domains with the largest scores were that of *employment* and *health empowerment*. The *employment* domain represented *current work*, *vulnerable employment*, *hierarchy of employment*, and *wages for work*. Through qualitative research, I found a strong work ethic existed and that work, as a means to earning money and establishing one's self, was highly valued. However, public-facing and paid employment was only a small part of women's lives and responsibilities. Unpaid labour, caregiving roles, and domestic duties constituted a significant portion of women's roles; these were, to a degree, valued socially. However, without financial value, these roles and responsibilities were not given priority. The *health empowerment* domain represented a number of opinion-based questions on the confidence an individual has in accessing healthcare and the ease at which she can access it. Health was seen as integral to gender equality, individual empowerment, and to determining overall life achievements; it was both a cause and effect of gender empowerment. Whilst questions in this domain have been used to determine women's agency in public health trials (Batura, et al., 2017), they reflect a number of inter-related – and possibly confounding – factors influencing access such as geography and wealth; these will be explored in more detail in Chapter 6.

### 5.7.3 GE Score

The GE Score represented the gaps between equality of achievement between partners, perceived equality in decision making, and experiences of intimate partner violence. Although the VAW domain was, in fact, the area with the lowest gap, this still represented a reported lifetime prevalence of an experience of violence with a current partner of over 30%. This was lower than previous national lifetime prevalence estimates reported by Garcia-Moreno et. al. (WHO, 2010) but may reflect differing methodology and approaches to disclosure of violence. In the context of an intensive questionnaire such as the ENDES, which may or may not have been performed in the presence of other family members or the individual's partner, the disclosure of violence may be under-reported. Novel approaches to violence reporting are being developed such as the 'neighbourhood method' (Stark, et al., 2013), however, these may not be compatible with a standardised survey methodology.

Furthermore, the VAW domain did not correlate strongly with either the *decision-making* or *labour differences* domain, although the factors were clearly defined by EFA and the model converged in CFA, which may indicate that VAW is actually a separate phenomenon that is not necessarily associated to decision-making within the household. Given the widespread rates of violence in Peru, and the relative acceptance of interpersonal violence, perhaps this means that traditionally more ‘empowered’ women who may have objectively measured equal outcomes with their partner, still suffer from violence.

The average reported *decision-making* gap of the GE Score was also relatively low, and reflected reports by women of taking the lead in or making equitable household decisions. Reports of decision-making may not necessarily reflect full autonomy, as evidenced by qualitative reports of women who felt they were in-charge of the logistics of purchasing household goods, when in fact their partner still held a degree of economic power over these decisions (Chapter 3 and 4). So, this domain may represent more of a form of perceived autonomy rather than objectively measured autonomy. Debates around the validity of subjective measures of autonomy have previously raised concerns about bias in self-reporting through adaptive preferences and the context of the questionnaire itself (Alkire et al, 2013; Gram et al, 2016; Ibrahim & Alkire, 2007). Furthermore, certain areas of decision-making, such as having control over cooking, may be less influential in terms of economic power in the home than other areas, such as financial decision making. This was demonstrated during the exploratory factor analysis above, where decision-making for food to cook was negatively correlated with education differences and less strongly correlated with other decision-making items.

The *labour differences* domain represented the difference between partners in paid work, vulnerable employment, and wages. It was the poorest-performing area of the GE score, representing a large gap between women and their male partners, driven mainly by differences in vulnerable employment. This is consistent with qualitative research detailed in Chapters 3 and 4, where I found women were more likely to work in unpaid or informal labour, have multiple jobs, juggle domestic commitments, and have more precarious financial situations. In many countries,

women are over-represented in informal, low-paid or unpaid, or insecure work (Chant & Pedwell, 2008; Chen, et al., 2004; Valenzuela & Abramo, 2006). In Latin America, although the female labour force participation rate has increased, significant gender inequalities exist in types of employment, unemployment rates, and wages; which are, in turn, influenced by factors such as poverty (Valenzuela & Abramo, 2006). Further, women perform roles that span a range of activities that blur personal and professional boundaries and make it challenging to quantify (George, 2007). Women also allocate significant time to activities that are not considered formal economic activity (Ortiz-Ospina & Tzvetkova, 2017). Current measures of gender equality do not explore employment from a perspective that challenges the dominant, fixed conception of what ‘work’ means. Many current measures report female participation in the formal labour force and do not capture women’s contributions to the unpaid or informal economy, thus rendering women ‘invisible.’ There is a missed opportunity to address the often dynamic and multi-faceted domains of domestic work and the interaction between informal and formal, paid and unpaid work, as well as value domestic contributions. Data limitations in ENDES have meant that the WAGE Score was unable to quantify these nuances further, but it is a critical area for development in gender data systems going forward.

#### 5.7.4 WAGE Score

The WAGE Score had an overall median value of 0.35 (IQR 0.24, 0.43). When interpreted on a scale between 0 and 1, with zero being the ‘ideal’ scenario where there is no gap between actual and optimal achievements and equality, this score reflected a significant average gap in women’s achievement and equality in Peru. Breaking the WAGE into its components, the WA Score median value was 0.29 (IQR 0.13, 0.40) representing a significant gap in actual and optimal achievements over the selected *women’s achievement* domains. The median value of the GE score was 0.40 (IQR 0.31, 0.49) reflecting a larger gap in *equality*. Therefore, the results could be interpreted as signifying that women, on average, were less *under-achieving* in their individual life outcomes than they were *un-equal* with their partner. The question then arises: does under-achievement equate to gender inequality within couples? To address this issue, I will further explore the patterns of the WA and GE



scores in the following Chapter. Also in Chapter 6, I will deconstruct the WA, GE and WAGE by socioeconomic categories and geographic region to better understand the results.

### 5.7.5 Limitations

#### 5.7.5.1 Data limitations

Un-partnered women were excluded from the WAGE score construction and data analysis. By the nature of some of the items in the WA score, such as *age of first cohabitation*, and GE score, such as *decision-making*, I chose to limit the WAGE score to women who reported information on their partner. This meant that a large proportion of women were excluded from the analysis. The group of excluded participants were significantly different to the included participants, most notably in age (mean age difference of 23 versus 32 years). This is understandable, as younger women would be less likely to have partnered.

This means that the WAGE Score only represents a certain population: ENDES only reports on women of childbearing age (15-49 years) and, within this population, the WAGE score further restricts analysis to women of childbearing age *with a partner*. Although this truncation facilitated ease of data analysis, it does not allow for a full evaluation and recognition of the various stages of women's and men's lives and risks making commentary on a non-representative sample of the population. ENDES (and the DHS more broadly) was originally developed to collect information about women's reproductive health outcomes, and has therefore always been focused on a specific age group with a specific set of questions. The survey modules and questions as have expanded somewhat to include measures of violence and other measures of women's empowerment, but the overall scope remains narrow. Given the logistical and financial burden of this survey programme, expanding to include other age groups or genders is a challenge. Some surveys now include a module for men, which include information on sexual and reproductive health, employment and gender roles, and other health issues.

### 5.7.5.2 Item weighting and aggregation

As detailed in Chapter 2, various approaches to item weighting have previously been used. There is no consensus about the optimal strategy of indicator weighting and aggregation in the overall construction of a women's achievement and gender equality index. Normative and consensus-based weighting techniques have been criticised as being non-transparent and failing to capture adequate depth or breadth of information on the lived experiences of gender (Cueva Beteta, 2006). Equal-weighting approaches take a more 'agnostic' standpoint (Decancq & Lugo, 2012). EFA is, in a different way, agnostic, in that the structure of the underlying data is derived from the data itself.

I chose to use EFA and CFA to understand the underlying structure of the data and to weight and aggregate indicators by WA and GE domains. Because there is no consensus in the literature regarding the optimal strategy of indicator weighting and aggregation in gender indexes, I selected EFA as a data-driven approach because it allowed me to first assess the underlying structure of the data and second to combine the data in a way that did not assume any preconceived structure (Branisa, et al., 2014; Jolliffe, 2014; OECD Development Centre, 2014). In this regards, it could be seen as both an exploratory and 'agnostic' approach: by resisting a normative or value-judgement approach to weighting or aggregation, it enabled the identification of an endogenous structure that both told a story about the way indicators were interrelated and suggested a means by which to combine the data. Rather than placing a preconceived hierarchy onto the dataset, individual indicators were summarised in a manner that retained the largest possible variation in the data, where the largest factor loadings were attributed to indicators that demonstrated larger variation across the dataset. By doing so, this prioritised indicators that contributed to variation across the dataset; indicators that did not contribute to overall variation were of less value in discriminating or explaining differences of performance. CFA, subsequently, allowed the confirmation of this structure in an equally rigorous manner.

In addition to factor analysis, I was able to integrate qualitative insights into the WAGE score construction. I combined qualitative and quantitative methods first in

comparing domains identified in qualitative research with those in ENDES, second in thinking through the recoding of ENDES items, and third in comparing the factor analysis results using domains shaped by qualitative research and ones derived from quantitative analysis. The importance of qualitative research to identify gendered phenomena and indicators has recently been recognised (Alkire, et al., 2013; Singh, et al., 2013), but as of yet is not widely used in the field of international gender index construction. Ultimately, factor analysis makes the largest contribution to WAGE Score, largely because the score is constrained to working with ENDES variables. However, this style of mixed methods approach helps combine local research with a statistical technique so that valid domains are first identified and then weighting is determined through the structure of the data itself. Through bridging the lived reality of women to international constructs, it may help in providing a meaningful, deep and comprehensive measure of women's achievement and gender equality which risks being missed by statistical analysis alone. This is something I will explore further in Chapter 6.

#### 5.7.5.3 WA and GE Score Distributions

The WA and GE Scores and their domains had a non-normal distribution (see Figures 15–18 above). To report the results of the WAGE score components, I reported the mean (SD) and median (IQR). In most cases, I found that the mean and median values aligned. The non-normal distribution of the data may, to a degree, reflect the largely categorical items, and the way in which these were combined. Taking these results as they stand, however, the distributions provide a useful insight into the nature of women's achievements and gender equality in Peru, and into each of the domains that inform these scores. For example, the skewed distribution of domains associated with violence (*attitudes towards wife beating* in the WA Score and *VAW* in the GE Score) demonstrate that many women were opposed to wife beating and that many had experienced little or no violence with their current partner. This is an anticipated and reassuring finding that provides insights into women's lives and experiences at a population-level. Further, if this score methodology is replicated in other contexts, the distribution of the WAGE, WA, and GE Scores - and their domains - may be different, providing greater insight into gender dynamics by country context.

As the domains were combined into the WA and GE and, ultimately, the WAGE Score, the distribution appeared less skewed and more normal. The central limit theorem states establishes that in most situations, when independent variables are added, their normalised sum tends towards a normal distribution (Heyde, 2006). So, by items first by domain and then by WA and GE scores, this may have led to an overall 'normalising' of the distribution of the WAGE score.

## 5.8 Conclusion

In summary, this Chapter has addressed key challenges in the construction of an individual-level gender achievement and equality score. The stages involved in dataset preparation included: excluding un-partnered participants, dropping individuals with MCAR missing data, and imputing missing data in those items that were MAR. Data transformation ensured that each item reflected a gap between actual and optimal achievements or equality. Multivariate analysis and EFA of the data allowed me to understand the pattern of the dataset, whilst CFA confirmed the structure of the domains and items and helped me to predict factor scores and subsequently to combine items by domain into the WA and GE Scores, and finally into the WAGE Score.

The WAGE Score attempts to quantify and value both individual achievement in relation to others *and* equality between women and men. It does so by calculating the gap between actual and ideal individual achievement and equality within partnerships, thus establishing a 'gold standard' that is applicable across contexts. The median WAGE Score was 0.35 (IQR 0.24, 0.43), reflecting the median values of the WA (0.29, IQR 0.13-0.40) and GE (0.4, IQR 0.31-0.49) Scores. There was a larger GE Score than WA Score, indicating that in Peru there is relatively greater *gender inequality* than *under-achievement*. Comparison of the WA and GE scores, as well as concentration of these phenomena in certain social groups, needs further exploration. To further understand the performance of the WAGE score, the results will be deconstructed by socioeconomic categories in Chapter 6.



## CHAPTER 6: THE SHAPE OF ACHIEVEMENT AND EQUALITY IN PERU: RESULTS OF THE WAGE SCORE

### 6.1 Introduction

Building from Chapter 5, which detailed the WAGE Score construction, this chapter provides an opportunity to present the results of the WAGE Score in more detail, and to demonstrate how it can be used to explore women's achievement and gender inequality in Peru. Examining how women's achievements and gender equality relate both individually and collectively over certain social categories, and how these concentrate in certain populations, can help illuminate within-country inequalities in Peru.

As such, the aim of this chapter is three-fold. First, to present the results of the women's achievement (WA) and gender equality (GE) scores, and interrogate their distribution and association. Second, to group the WA, GE and WAGE scores by socioeconomic categories and geographic regions, identifying gradients of (under)achievement and (in)equality in Peru. And, third, to explore the intersections between gender and other social inequalities in Peru taking a mixed-methods approach.

I will address the first aim by examining the distribution and correlation of the WA and GE scores derived from the ENDES 2015 survey. This provides an overview of the population-level pattern of women's achievements and gender equality in Peru. However, gender inequality does not occur in isolation from other social inequalities such as poverty or ethnic marginalisation. Building on the first section, I will address the second aim by deconstructing the WA, GE and WAGE scores by socioeconomic categories, to understand gradients of women's achievements and gender equality in Peru and how these relate to other areas of social (dis)advantage. I will address the third and final aim by utilising a mixed methods approach to explore the intersectional effects of layered social inequalities on women's achievement and gender equality in Peru.

## 6.2 Comparison of the WA and GE Scores

As detailed in Chapter 5, the WAGE Score evolved to capture two distinct constructs: individual achievement in relation to other women (women's achievement) *and* equality between women and men (gender equality). The separate but interrelated components of the WAGE Score demonstrated distinct patterns that need further interrogation. How do these components relate? And, does women's under-achievement equate to gender inequality within couples? These are key questions that I will address in this section. I will first review the distribution of the WA and GE Scores, and reflect on the insights this provides into the shape of women's achievement and gender equality in Peru. I will then explore the association between the WA and GE Scores at the individual level. Finally, I will present the agreement between quintiles of WA and GE Scores, so as to demonstrate how the scenarios of achievement and equality operate in the study population.

### 6.2.1 The distribution of the WA and GE Scores

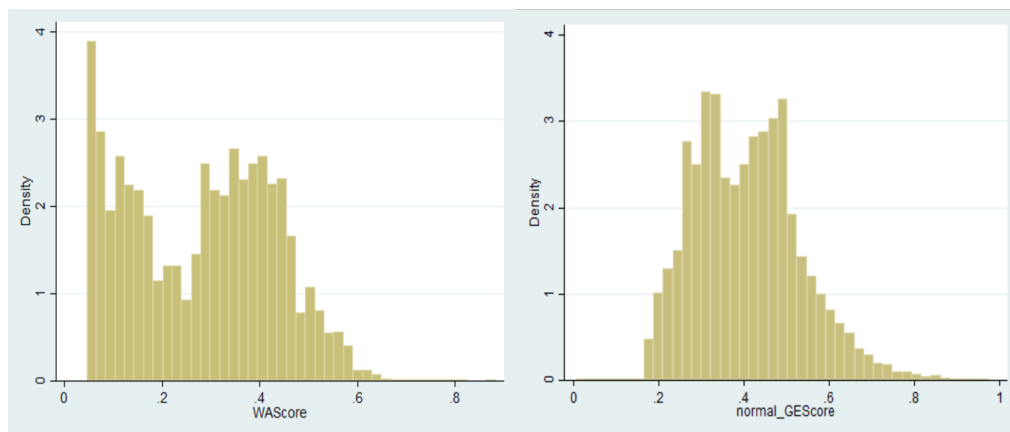
To start the analysis, I return to the distributions of the WA and GE Scores, first presented in Figures 16 and 18 in Chapter 5, and now presented for comparison in Figure 20, below. In ENDES 2015, The median WA score was 0.29 (IQR 0.13, 0.40). This can be interpreted as a median gap between actual and optimal achievements of 29%. The positively skewed distribution means the bulk of the WA scores were oriented towards zero, with 75% of women scoring at or below 0.40, and 95% women scoring at or below 0.52. The median GE score was 0.40 (IQR 0.31, 0.49), signifying gap in gender equality of 40%. As seen in Figure 20 below, the GE Score was less skewed. Half the individual scores were situated between 0.31 and 0.49, and 98% of the scores fell between 0.18 and 0.75. So, the GE Score had a higher median value than the WA Score, and was less positively-skewed.

This suggests two things. First, there is a smaller *achievement* gap and a larger *inequality* gap in the 2015 ENDES population. Second, there are differing distributions of *achievement* and *equality* in the ENDES 2015 population (Wilcoxon signed rank test,  $Z = 97.16$ ,  $p < 0.001$ ). The *achievement gap* is oriented towards



zero, meaning that a demonstrable proportion of women have close to a zero gap between actual and optimal achievements. Whereas the *gender equality gap* is not as positively skewed and the majority of individual scores fall above 0.18. This means that, based on the WAGE Score, all women in the ENDES experience some form of gender inequality. I will build on these findings below, through exploring the association between WA and GE Scores.

Figure 20: Distribution of the WA (left) and GE (right) Scores over the ENDES 2015 population



### 6.2.2 The relationship between WA and GE Scores

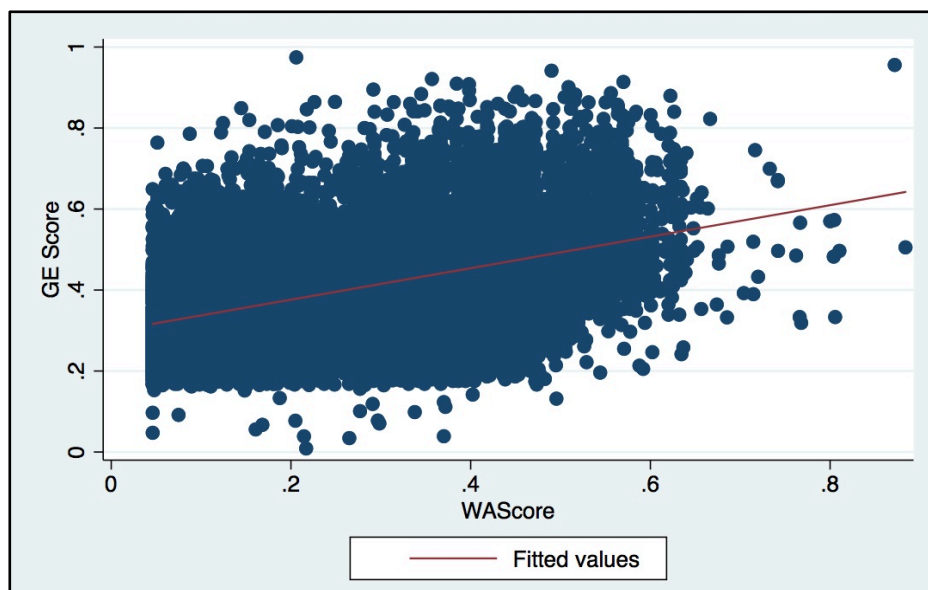
I explored the relationship between the WA and GE scores through a simple scatter plot, and used Spearman's rank correlation coefficient to examine the correlation between the scores. The calculation and justification for Spearman's rank correlation is described earlier in Section 5.4.1. Figure 21 demonstrates the association between the WA Score (x-axis) and GE Score (y-axis). The Spearman's rank correlation coefficient was 0.48 (p value 0.000), indicating a statistically significant, positive correlation between the two variables. This demonstrates that, using individual-level data, as the WA Score increases, the GE Score tends to increase. However, it can be seen on the graph below that, at a low value of WA Score (approaching zero), there are a range of GE score values that correspond to a low WA score value, up to 0.6 or above. So, even with low WA Scores (as in, women's achievements close to ideal), a significant amount of gender inequality remains. This is consistent with the findings presented in Section 6.2.1 above, that

demonstrate how the GE Score median value is higher and less skewed towards zero than the WA Score.

These findings highlight two important aspects of the association between the WA and GE Scores. First, as women's achievements fell short of optimal levels (reflected by a WA Score increase), they were also more likely to experience greater gender inequality (reflected by a larger GE Score, with a positive trend line and Spearman's rank correlation coefficient of 0.48; see Figure 20). In other words, greater underachievement was – to a degree – associated with greater gender inequality. Second, at the extreme lower levels of the WA Score, where women demonstrated achievements at or close to the optimal level, they were still likely to experience some form of gender inequality (a WA Score of close to zero was associated with a range of GE Scores up to or above 0.6; see Figure 13). So, the fact that many women demonstrated a strong performance in the WA Score did not translate into a low GE Score. In other words, strong achievements do not always protect against gender inequality.

Before considering these findings in more detail in the summary below, I will explore the agreement across quintiles of the WA and GE Score in Section 6.2.3.

*Figure 21: Association between the WA (x-axis) and GE (y-axis) Scores*



### 6.2.3 Change in the quintile rankings of the WA and GE Scores

Given the association between WA and GE Scores above, I also wanted to further dissect if and how women's under-achievement scores relate to gender inequality within couples. Are some couples relatively equal, but with poor achievement indicators? Are some women high-performers who simultaneously experience gender inequality?

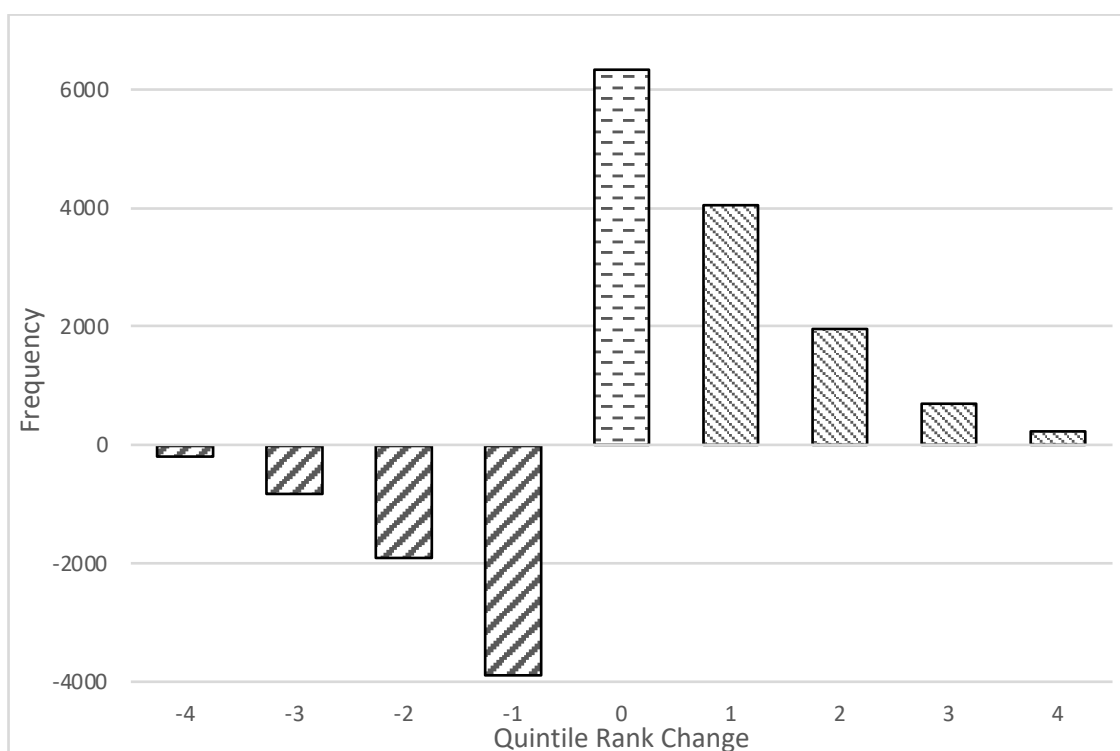
To address these questions, I divided the WA and GE scores in to quintiles. I then ranked each of the quintiles from 1 to 5, where 1 represented the quintile with the lowest scores for WA or GE (i.e., the highest achievers or the more equitable couples), and 5 represented the highest scores for WA or GE (i.e., the lowest achievers or the less equitable couples). For each individual, I then took the difference between the WA Score quintile rank and the GE Score quintile rank. This resulted in a range of values between: -4 and 4.

Figure 22 presents the results. It demonstrates that, of the 20,101 individuals, about one-third (n=6,335) remained in the same quintile classification in both the WA Score and the GE Score (quintile rank change of zero), one-third (n=6,893) moved to a lower (less inequity relative to achievement) GE quintile than WA quintile, and one-third (n=6,927) moved to a higher (more inequity relative to achievement) GE quintile than WA quintile. In those who moved to a lower GE quintile compared to WA quintile, 3,905 dropped one rank, 1,902 dropped two ranks, 814 dropped three ranks and 200 dropped four ranks. In those who moved to a higher GE quintile compared to WA quintile, 4,047 increased one rank, 1,957 increased two ranks, 695 increased three ranks and 228 increased four ranks.

This means that, in about one third of the women interviewed in ENDES 2015, the quintile rank score of the WA Score and GE Score were in agreement. In other words, these women performed relatively as well in women's achievements as they did in gender equality. In approximately one third, the quintile rank of the GE Score fell relative to the quintile rank of the WA Score, meaning that women performed relatively better in gender equality than in women's achievements. In the third of

women whose GE Score quintile rank increased relative to the quintile rank of the WA Score, this represented a relative decline in equality relative to achievement.

*Figure 22: Change in the quintile rank (across-quintile re-classification) between the WA and GE Scores*



Although the WA and GE scores were positively correlated (Section 6.2.2), the above analysis shows that an individual's ranking on the WA score – relative to others in their cohort – does not always align with their ranking on the GE score. Figure 22 demonstrated that, for a woman and her partner, there are roughly three different types of combinations between the WA and GE scores occurring in equal proportions: some women may score poorly in achievements, but score relative better in equality, some women may have strong achievements but experience relatively greater gender inequality, and some women may perform the same in both achievements and equality. This suggests, when looking at the manner in which the WA and GE scores combine, that 'achievement' and 'equality' do not always occur simultaneously, or to the same degree, in a couple. When comparing across quintiles, women who perform poorly on the WA score do not necessarily perform as poorly on the GE score and vice versa. This may mean that the

phenomena of women's achievements and gender equality should be reported as separate but interrelated results, and that assuming a double-burden of under-achievement and gender inequality is not always accurate. This will be discussed further below.

#### 6.2.4 Section Summary

Deconstructing the WAGE into the WA and GE scores has facilitated valuable insights into the nature of women's achievements and gender equality in Peru. First, I found that, in the ENDES 2015 population, there was a smaller *achievement* gap and a larger *inequality* gap. Second, there are differing distributions of *achievement* and *equality*, meaning that, although a proportion of women perform close to optimal in achievements, most women in the ENDES experience some form of gender inequality. Third, relating to this, strong performance in women's achievements does not fully protect against gender inequality. Fourth, there is a positive correlation between the WA and GE Scores. However, this does not always mean that women who perform strongly in the women's achievement score experience less gender inequality; the quintile ranks demonstrate a variable pattern that may change between the WA and GE scores.

The differences between the WA and GE Scores could be explained by the broader economic, social and political context of Peru. The WA Score, representing women's achievements, is derived from key socioeconomic indicators such as education and labour force participation, which reflect – in part – the overall development situation in Peru. In the context of a modern Peruvian society built upon an historical landscape of power, economic, ethnic and gender inequalities (Boesten, 2010; Cameron & Mauceri, 1997; Ewig, 2010; Motta, 2011), a higher median GE Score is understandable. This will be explored in more detail in the discussion, below.

To continue to build a more granular picture of women's achievement and gender equality in Peru, I grouped the WA, GE and WAGE scores by ethnicity, geographic location, and wealth. This will be detailed in Section 6.3 below.

## 6.3 Deconstructing the WA, GE and WAGE Scores by socioeconomic categories

The second section of this chapter is dedicated to presenting the WA, GE and WAGE Scores over selected socio-economic categories. Building from the previous section, which demonstrated differing patterns in the WA and GE Scores, it was important to understand gradients of women's achievements and gender equality in Peru and how these related to other categories of social (dis)advantage. I will first define the socioeconomic categories that I will use to group ENDES 2015 data. I will then present the WA, GE and WAGE scores by selected socioeconomic groupings. Finally, I will interrogate the association between wealth, women's achievements and gender equality.

### 6.3.1 Defining socioeconomic categories

In ENDES, ethnicity was determined by a combination of questions on language and self-identity (INEI, 2016):

- *What is your mother's language or mother tongue?*
- *What is your father's language or mother tongue?*
- *Which language or dialect do you usually speak at home?*
- *By your ancestors and in accordance with their customs, do you consider yourself: Quechua? Aymara? Native or indigenous to the Amazon? Black/African-Peruvian? White? Mestizo (mixed)? Other?*

The main ethnic categories identified by ENDES are: Spanish-speaking, Aymara, Quechua, other Indigenous, and foreign. As recognised in Chapters 4 and 5, ENDES data are still under-representative of indigenous ethnic minorities compared to 2007 Census data.

In the ENDES dataset, wealth was represented by the Wealth Index (WI), a compound measure of material wellbeing used by the DHS. It is not simply a measure of monetary income but a measure of the material wealth/shortage that a family is experiencing, a "...composite measure of a household's cumulative living

standard” (USAID, 2016). The WI is calculated using data on a household’s ownership of selected assets, such as televisions and bicycles, materials used for housing construction, and types of water access and sanitation facilities. Using principal component analysis, the WI methodology places individual households on a scale of relative wealth (ibid.). The WI is then expressed in quintiles representing poorest, poor, middle, richer and richest groups. It is a standardised methodology that has utility for assessing economic wellbeing independent of financial information – especially in areas where reliable information on incomes and expenditures are lacking.

ENDES presents categorical data on the geographic location of individual participants and their relationship to the household. This information can be grouped by *departamento* (province), type of residence (capital city, other city, town, and countryside) or rural/urban location. This information was determined by the original geographic sampling framework as well as direct questions about current place of residence, previous place of residence, and time spent in residence (INEI, 2016). In addition to the broad categories, GPS data is available on request, providing more specific geographic information on each participant.

### 6.3.2 WA, GE and WAGE scores and socioeconomic status

I explored the pattern of WA, GE and WAGE Scores over the categories of urban-rural location, ethnicity and wealth, as shown in Table 26.

Between urban and rural areas, I found a difference in the median WA, GE and WAGE scores between urban and rural areas, which was most pronounced for the WA Score (a median value of 0.24 in urban areas compared to 0.40 in rural areas). The stark difference in WAGE Scores between rural and urban areas (median WAGE score of 0.41 compared to 0.32) could mainly be attributed to the difference in WA Score, which, in turn, may be a reflection of a socioeconomic development gap between urban and rural areas, particularly in the domains of women’s achievement such as education and labour.

When exploring categories of ethnicity, the Spanish-speaking majority group performed the strongest in WA Score, with median of 0.28, compared to 0.40, 0.39, and 0.42 in the Quechuan, Aymaran and Other Indigenous groups, respectively. In the GE score, however, the results were less gradated, with all ethnicities' median GE Scores ranging from 0.35 (Aymara) to 0.46 (other Indigenous) and 0.48 (foreign languages). This demonstrates a relatively high gender inequality in all ethnicities, regardless of the WA score.

Over categories of wealth, there was a step-wise decrease in in WA, GE and WAGE scores as wealth index quintile increased. The decrease in WAGE Score (from a median of 0.41 in the first wealth index quintile to 0.22 in the fifth wealth index quintile) was mainly driven by the WA Score (which demonstrated a dramatic decrease in the median score from 0.40 to 0.09 between first and fifth wealth index quintiles), and less so by the GE Score (demonstrating a decrease in the median score from 0.43 to 0.34 between first and fifth wealth index quintiles). This finding may also reflect that, like geography, the WA Score is representative of socioeconomic development, and that WA Score indicators such as education and employment improved over increasing categories of wealth.

The strongest performing individuals in the WAGE Score were those from the highest wealth index quintile (median value of 0.22, driven mainly by a strong WA Score of 0.09). The poorest performing group of individuals were those who identified as 'other Indigenous,' who had equally poor WA and GE Scores (median value of 0.44, with a WA Score of 0.42 and GE Score of 0.46). Although those from the highest wealth index quintile were the strongest performing category on the WAGE Score, they also recorded the biggest discrepancy between women's achievement (median 0.09) and gender equality (median 0.34). There was also a large discrepancy between the WA and GE Scores in urban locations (WA score median 0.21, GE Score median 0.39). Over categories of ethnicity, especially in non-Spanish speaking participants, there was a less distinct difference between the WA and GE Scores, where there seemed to be both poor women's achievements and high gender inequality.



Table 26: The WA, GE and WAGE scores grouped by categories of geography, ethnicity, and wealth

	Total	WA Score			GE Score			WAGE Score		
	N	Median	IQR, lower	IQR, upper	Median	IQR, lower	IQR, upper	Median	IQR, lower	IQR, upper
<b>Overall Score</b>	<b>20,101</b>	<b>0.29</b>	<b>0.13</b>	<b>0.4</b>	<b>0.4</b>	<b>0.31</b>	<b>0.49</b>	<b>0.35</b>	<b>0.24</b>	<b>0.43</b>
Urban/rural location										
Urban	13,394	<b>0.21</b>	0.11	0.36	<b>0.39</b>	0.3	0.48	<b>0.3</b>	0.22	0.41
Rural	6,707	<b>0.39</b>	0.29	0.45	<b>0.42</b>	0.33	0.5	<b>0.39</b>	0.32	0.47
Ethnicity										
Castellano	18,143	<b>0.28</b>	0.13	0.39	<b>0.4</b>	0.31	0.49	<b>0.33</b>	0.23	0.43
Quechua	1,565	<b>0.4</b>	0.33	0.45	<b>0.39</b>	0.31	0.49	<b>0.39</b>	0.34	0.46
Aymara	101	<b>0.39</b>	0.29	0.43	<b>0.35</b>	0.31	0.43	<b>0.36</b>	0.3	0.43
Indigenous	286	<b>0.42</b>	0.36	0.47	<b>0.46</b>	0.37	0.53	<b>0.44</b>	0.37	0.49
Foreign	6	<b>0.41</b>	0.3	0.49	<b>0.48</b>	0.31	0.51	<b>0.41</b>	0.38	0.5
Wealth Index										
Poorest	5,402	<b>0.4</b>	0.32	0.46	<b>0.43</b>	0.33	0.51	<b>0.41</b>	0.34	0.48
Poor	5,376	<b>0.32</b>	0.18	0.41	<b>0.41</b>	0.32	0.5	<b>0.36</b>	0.27	0.44
Middle	4,015	<b>0.21</b>	0.12	0.36	<b>0.4</b>	0.31	0.48	<b>0.31</b>	0.23	0.41
Rich	3,018	<b>0.15</b>	0.09	0.31	<b>0.38</b>	0.29	0.47	<b>0.27</b>	0.2	0.38
Richest	2,290	<b>0.09</b>	0.06	0.29	<b>0.34</b>	0.27	0.44	<b>0.22</b>	0.18	0.35

Overall, these patterns show that WA Score seems sensitive to socioeconomic position, whereas the GE Score is less sensitive to socioeconomic grouping. In other words, although better median WA Scores may be seen in groups that are economically, ethnically and geographically advantaged, gender inequality persists over most categories of social (dis)advantage. This will be explored further in the discussion below.

### 6.3.3 Mapping the WA, GE and WAGE scores

In addition, to the above descriptive analysis, I mapped the average WA and GE Score cover the 25 *departamentos* (geopolitical areas) of Peru. I did this using a basic Esri Map file and the shp2dta (Shape to data) package imported to Stata. This allowed the visualisation of the intensity of WA and GE scores by *departamentos*.

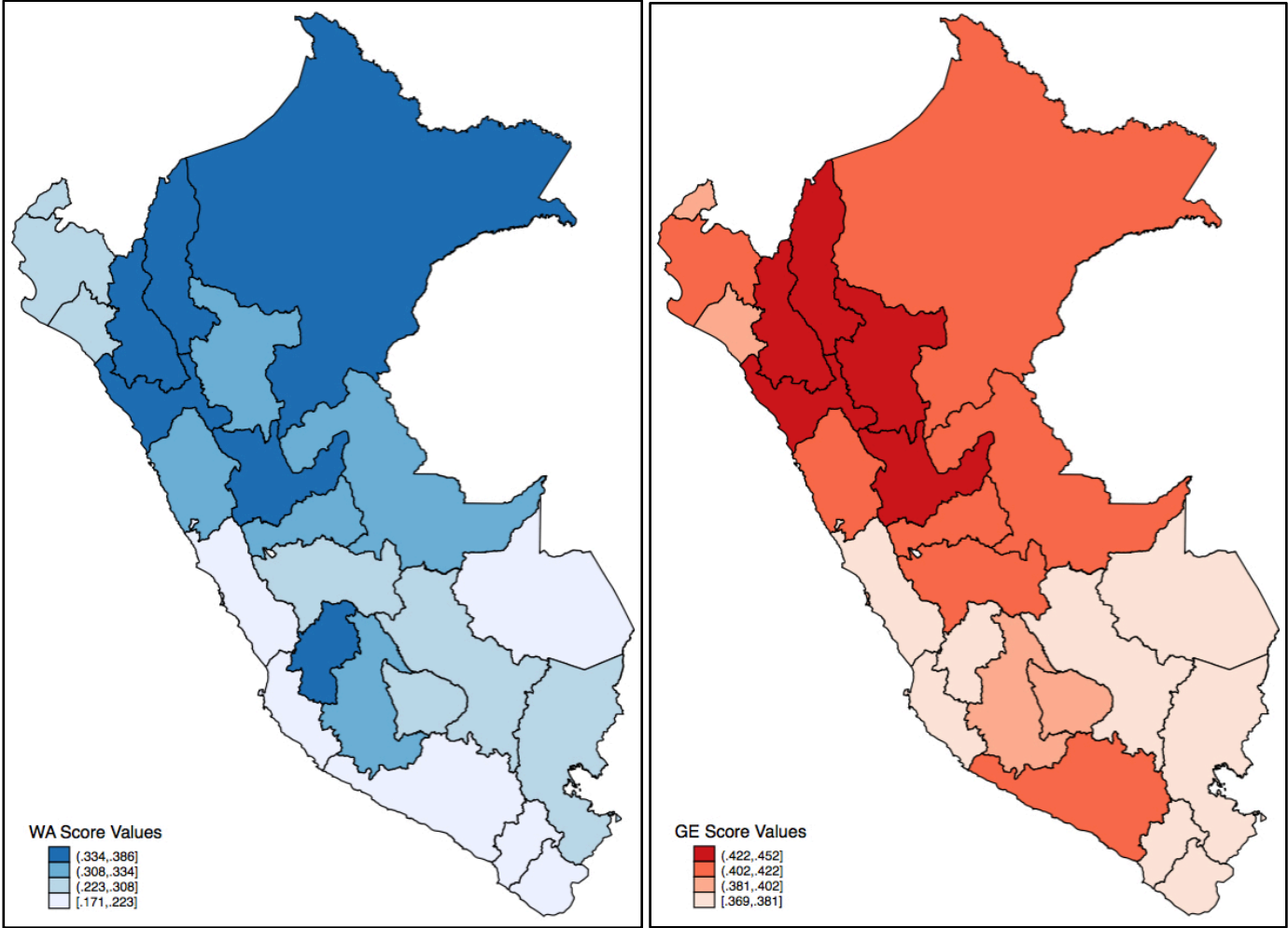
The results are presented in Figure 23 below. The areas with a higher WA or GE scores are represented in darker blue or red. These mainly represent parts of the north eastern region of Peru (Loreto, Amazonas, Cajamarca, La Libertad, Huánuco). A pocket of more southern Andean *departamentos* (Huancavelica, Ayacucho, Apurimac) also demonstrated larger WA and GE scores. Most of the western coast,

including the areas surrounding Lima, performed better with smaller overall scores (Figure 23).

Considering the previous analysis by socioeconomic group, especially urban/rural location and wealth, the results displayed in Figure 23 reflect a consistent picture of socioeconomic inequality between geopolitical regions. Jungle *departamentos* such as Loreto and Amazonas are less economically developed and more rural, and traditionally have lagged on certain development indicators, such as education (Instituto Nacional de Estadística e Informática, 2015). Other rural areas such as the Andean *departamentos* Cajamarca, Huánuco, Huancavelica, Ayacucho, and Apurímac, also demonstrate lower levels of socioeconomic development (Instituto Nacional de Estadística e Informática, 2015). On the flip side, coastal, more urbanised *departamentos* including Lima generally have demonstrated higher average levels development.

Interestingly, the pattern is similar between both WA and GE scores, indicating a concentration of *both* under-achievement and inequality in certain geopolitical areas.

Figure 23: WA and GE Scores, presented by 25 Peruvian Departamentos



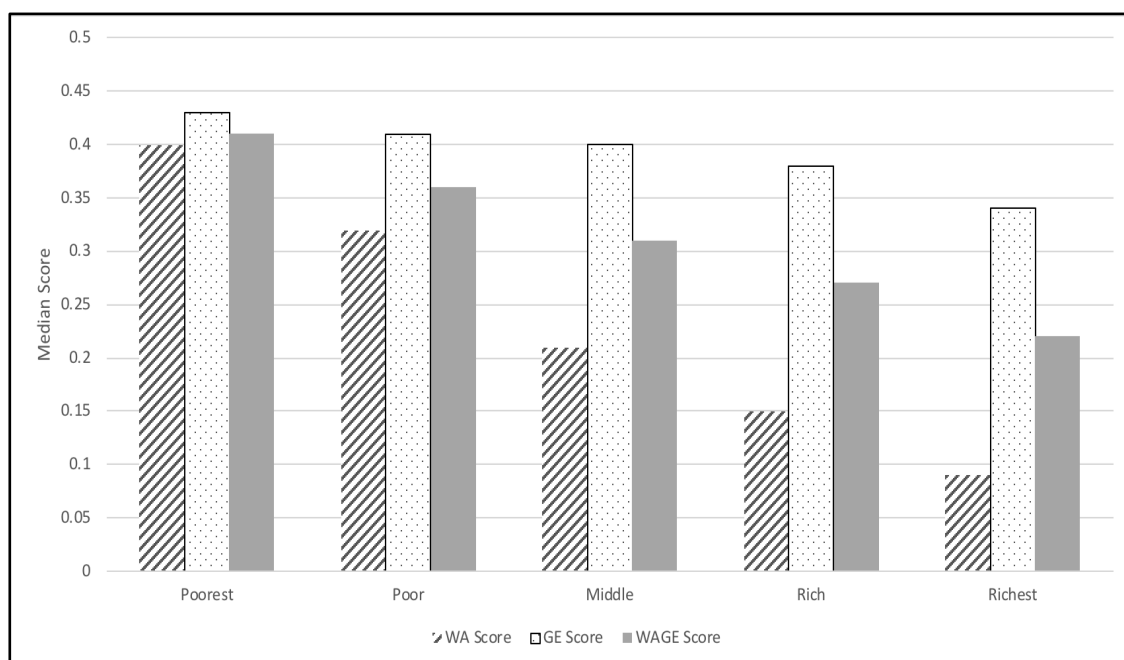


### 6.3.4 The shape of inequality: difference in gender equality over levels of wealth

In this section, I explore the impact of levels of economic development on gender equality in Peru. I used the wealth index of the household as a proxy for socioeconomic position, and mapped this against the WA, GE and WAGE Scores. In particular, my focus was to explore the change in gender equality by wealth.

Figure 24 demonstrates visually the change in median WA, GE and WAGE Scores over quintiles of wealth (these results were first presented in Table 25 above). What can be seen is a steep decrease in WA Score over quintiles of wealth, and a much less steep decrease in the GE Score. This suggests that gender equality is less affected by economic development than women's achievements.

*Figure 24: WA, GE and WAGE Scores, presented by quintiles of wealth*



As discussed above, one postulated reason for this pattern is that the WA Score is, in essence, comprised of indicators that reflect economic development, such as education and labour force participation. One way to examine this hypothesis further was to deconstruct the WA and GE Scores by their domains and present these over wealth quintiles, so as to identify which domains were driving the steeper gradient in the WA Score and less-steep but constant gradient in the GE Score.

Table 27 presents the median values of the WA Score domains over wealth quintiles. In these domains, there is a steep gradient in the decrease of scores in *employment, education and choice, and health empowerment*. In *employment*, the median WA Score decreased from 0.53 to 0.04 between the poorest and wealthiest quintiles, meaning that almost all women in the highest wealth quintile were employed in secure, waged employment. In *education and choice*, the median WA Score decreased from 0.58 in the poorest quintile to 0.01 in the richest, indicating that women in the highest wealth quintile achieve near optimal levels in *education, literacy, age of first intercourse, and access to condom if needed* items. The *health empowerment* domain followed in a similar but less steep pattern, where increasing wealth quintiles demonstrated decreasing WA Scores. The gradient over wealth quintiles in these three domains suggest that there is a strong correlation between wealth and women's achievement: either that these achievements lead to wealth, or that this wealth facilitates these achievements. The *attitude to wife beating* domain demonstrated median scores close to zero in all categories, a reflection of the heavily skewed distribution and less variation in attitudes to violence in the survey population.

**Table 27: The WA Score summarised by domains and across wealth index quintiles**

WEALTH INDEX CATEGORY	EMPLOYMENT		EDUCATION AND CHOICE		HEALTH EMPOWERMT		ATTITUDES TO WIFE BEATING		OVERALL WA SCORE	
	Median	IQR	Mediar	IQR	Mediar	IQR	Mediar	IQR	Mediar	IQR
POOREST	0.53	0.49,0.99	0.58	0.39,0.78	0.41	0.32,0.47	0.00	0.00,0.5	0.40	0.32,0.45
POOR	0.49	0.04,0.99	0.38	0.20,0.58	0.35	0.27,0.42	0.00	0.00,0.2	0.31	0.18,0.41
MIDDLE	0.06	0.04,0.99	0.19	0.02,0.39	0.31	0.26,0.39	0.00	0.00,0.2	0.21	0.12,0.36
RICHER	0.05	0.04,0.99	0.19	0.01,0.20	0.28	0.20,0.35	0.00	0.00,0.1	0.15	0.08,0.31
RICHEST	0.04	0.01,0.93	0.01	0.00,0.19	0.25	0.18,0.30	0.00	0.00,0.0	0.09	0.06,0.29

Table 28 presents the median values of the GE Score domains over wealth quintiles. There was a less pronounced but stepwise gradient of difference in the median GE scores between poorest and richest quintiles. In the *decision-making* domain, there was a decline in the median scores from 0.43 to 0.31. This indicates that, as wealth increases, decision-making equality between partners increases. In the differences in labour domain, there were no changes in the median value. This finding may be explained by this domain's distribution (see Figure 9, Chapter 5).<sup>17</sup> The median GE scores in the VAW domain were low, reflecting the skewed distribution of this data. The highest median score occurred in the second-poorest quintile. Because of this more mixed pattern across wealth quintiles, there is a less-steep gradient in the GE Score over quintiles of wealth.

**Table 28:** *The GE Score summarised by domains and across wealth index quintiles*

WEALTH INDEX CATEGORY	LABOUR DIFFERENCES		DECISION-MAKING		VAW		OVERALL GE SCORE	
	Median	IQR	Median	IQR	Median	IQR	Median	IQR
POOREST	0.51	0.50, 0.99	0.43	0.28, 0.53	0.03	0.00, 0.27	0.43	0.33, 0.51
POOR	0.51	0.50, 0.99	0.33	0.22, 0.46	0.07	0.00, 0.29	0.41	0.32, 0.50
MIDDLE	0.51	0.51, 1.00	0.31	0.20, 0.43	0.03	0.00, 0.26	0.40	0.31, 0.48
RICHER	0.51	0.50, 1.00	0.31	0.19, 0.43	0.03	0.00, 0.24	0.38	0.29, 0.47
RICHEST	0.51	0.50, 1.00	0.31	0.19, 0.42	0.03	0.00, 0.19	0.34	0.27, 0.44

<sup>17</sup> There was, however, an inverse-U shaped association in the mean score of the *labour differences* domain over quintiles of wealth, indicating greater mean inequality in decision-making in the middle quintiles of wealth and lesser gaps at either end. The VAW domain also demonstrated an inverted-U shaped association in its mean values, with a larger GE Score in the middle quintiles of wealth.

### 6.3.5 Section Summary

Women's achievements and gender inequality do not occur in isolation from other social inequalities such as poverty, geographic location or ethnicity. I found that the WA Score demonstrated a steep gradient over categories of ethnicity, wealth and urban/rural location. The sensitivity of the WA Score to socioeconomic factors most likely reflects that the score is comprised of indicators which are linked to socioeconomic development, such as labour force participation and education. On the other hand, GE Scores demonstrated a lesser gradient over categories of social (dis)advantage, and gender inequality persisted to a degree in most sections of Peruvian society regardless of wealth, ethnicity, or geographic location. This reaffirms the conclusions in Section 6.2 above, where stronger women's achievements could conceptually be linked to Peru's relatively advanced development indicators, but where greater gender inequality could be linked to systemic cultural and historical factors driving social and gender inequality in Peru and Latin America.

Although the WA and GE Scores demonstrated different gradients over categories of social inequality, they both were accentuated by poverty and rural locations. This led to a concentration of *both* under-achievement and gender inequality in certain geopolitical areas of Peru.



## 6.4 Intersectionality, women's achievement and gender equality

The results so far (see Chapter 3 and current chapter) indicate that certain socioeconomic factors influence the WAGE Score. Furthermore, women's under-achievement and gender inequality were concentrated in certain geographic areas of Peru, and in certain social categories. But what about at the individual level? How do multiple aspects of social advantage or disadvantage combine to affect an individual woman's experience of achievement and equality in Peru?

The growing field of intersectionality recognises that simple categorical handling of gender is insufficient to fully capture its complexity and multiple levels of social identity must be recognised (Springer, et al., 2012). Bates, Hankivsky and Springer (2009) call for an intersectional approach to examining the effects of gender and its interactions with various social hierarchies, rather than treating categories of social identity in isolation. A quantitative approach assessing layered social disadvantage and its effects on gender achievement and equality could provide a means to partially address this complexity. The WAGE score enables re-aggregation of individual-level data over multiple layers of social identity, facilitating a quantitative approach to intersectionality: the exploration of gender over intersectional layers of ethnicity, geography, and wealth.

To address the intersectional aspects of gender and other socioeconomic categories, and to explore the summative effect of multiple layers of social identity on gender achievement and equality, I compared five hypothetical scenarios and how this would impact the overall WAGE Score:

1. The median WAGE Score performance of an individual who ranks the lowest in wealth, identifies as an Indigenous person living in a rural area (n=258)
2. The median WAGE Score performance of a Spanish-speaking individual who ranks the lowest in wealth, living in an urban area (n=668)
3. The median WAGE Score performance of a Spanish-speaking individual who ranks the lowest in wealth, living in a rural area (n=3,173)

4. The median WAGE Score performance of an individual who lives in an urban setting, regardless of what ethnicity or wealth quintile they belong to (n=13,394)
5. The median WAGE Score performance of an individual who ranks the highest in wealth, identifies as a Spanish-speaking person living in an urban area (n=2,258)

These are detailed further in Table 29 below. This approach positions the individual at the centre of analysis, and allows the WAGE score to be compared from the perspective of the individual, in-keeping with the objectives of the field of intersectionality.

I found that women's achievement and gender equality vary distinctly depending on the socioeconomic background of the participant. To explain these differences, I linked some generalised observations from my qualitative research findings to the five scenarios, to provide a narrative about women's achievement, gender equality and the overall WAGE Score. This helped build a picture of the meaning behind each of the score values. The qualitative insights listed below act as generalised explanations rather than in-depth case studies, and are not intended to provide an in-depth analysis of discrepant cases.

**Table 29:** *Five hypothetical scenarios, analysing women's achievements and gender equality from an intersectional perspective*

1. The median WAGE Score of an individual who ranks the lowest in wealth, identifies as an Indigenous person living in a rural area (n=258)	<b>WA = 0.42 (IQR 0.38, 0.48)</b> <b>GE = 0.46 (IQR 0.37, 0.54)</b> <b>WAGE = 0.44 (IQR 0.38, 0.50)</b>
2. The median WAGE Score performance of a Spanish-speaking individual who ranks the lowest in wealth, living in an urban area (n=668)	<b>WA = 0.37 (IQR 0.27, 0.44)</b> <b>GE = 0.45 (IQR 0.35, 0.52)</b> <b>WAGE = 0.41 (IQR 0.32, 0.48)</b>
3. The median WAGE Score of a Spanish-speaking individual who ranks the lowest in wealth, living in a rural area (n=3,173)	<b>WA = 0.39 (IQR 0.31, 0.46)</b> <b>GE = 0.44 (IQR 0.33, 0.52)</b> <b>WAGE = 0.41 (IQR 0.34, 0.48)</b>

4. The median WAGE Score of an individual who lives in an urban setting, regardless ethnicity or wealth quintile (n=13,394)	<b>WA = 0.21 (IQR 0.11, 0.36)</b> <b>GE = 0.39 (IQR 0.30, 0.48)</b> <b>WAGE = 0.30 (IQR 0.22, 0.41)</b>
5. The median WAGE Score of an individual who ranks the highest in wealth, identifies as a Spanish-speaking person living in an urban area (n=2,258)	<b>WA = 0.09 (IQR 0.06, 0.29)</b> <b>GE = 0.33 (IQR 0.27, 0.44)</b> <b>WAGE = 0.22 (IQR 0.18, 0.35)</b>

***Scenario 1: An individual who ranks the lowest in wealth, identifies as Indigenous, and lives in a rural area***

*Maria<sup>18</sup> lives in the Indigenous community of Suca Sari, a day's journey upstream from Iquitos along the Amazon and Napo Rivers. She doesn't speak Spanish, although knows a few words. She has not travelled far beyond her community because she doesn't have a boat and she finds interacting in Spanish in a larger town difficult.*

From my observations in rural, Indigenous communities similar to this, I noted that in this group of women, many had relatively low levels of education and formal employment, many had difficulty accessing services, and some experienced violence. Furthermore, I observed distinct and unequal gender roles where women seemed to defer many decisions to their spouses, and were very shy in interactions with foreigners. Women in these communities normally occupied child-raising roles and contributed to a subsistence existence with fishing and foraging. These life experiences were reflected by high scores in both WA (under-achievement) and GE Scores (greater gender inequality). In this scenario, the median WA, GE and WAGE scores were, in fact, all relatively equal and high, representing a 42% gap between actual and ideal women's achievement, and a 46% gap in equality between the individual and her partner. Whilst a poor WA score is anticipated in this scenario (a reflection of poverty, ethnic marginalisation, and geographic remoteness, translating to lack of access to education, healthcare and formal labour market

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<sup>18</sup> All names in the scenarios are pseudonyms, and all place names reflect locations I have visited during my fieldwork

opportunities), the relatively large GE Score also means that women in this scenario face significant gender inequalities too, including in labour, decision-making and experiences of violence.

**Scenario 2: a Spanish-speaking individual who ranks the lowest in wealth, living in an urban area**

*Maria's daughter, Esmerelda, was given a scholarship to attend secondary education in Mazan by a local charity. Since then, she learned Spanish and became a street vendor in Iquitos, where she will sell traditional jungle food at the market. She receives support from the government to put her children through primary school. Her husband picks up informal work where he can back home, mainly hunting for jungle meat and making charcoal.*

During my time in Iquitos, I observed women in a similar situation to Esmerelda, who were from Indigenous communities and had migrated to the city, mainly for economic reasons. In this situation, the median WA score was slightly less, at 0.37, yet the GE score remained high at 0.45. The better performance in WA scores compared to Scenario 1 may be a reflection of greater economic and educational opportunities in urban parts of Peru (or, on the flipside, that better education or employment led to urban migration), as well as increased access to healthcare. Despite this, the GE Score remained high, indicating that gender inequality did not change despite some improvement in women's achievements.

**Scenario 3: a Spanish-speaking individual who ranks the lowest in wealth, living in a rural area**

*In a rural community closer to Iquitos, Nancy grew up speaking Spanish and prefers to identify as mestizo ribereño, as her parents did. Her family have a small plot of land, and they raise chickens and pigs. Her husband normally takes the family produce to market in Iquitos once every six months, where he stays for a few days until he has sold their goods, before returning to the river. She wishes she was more educated and had more money to afford certain household luxuries, but sees this as impossible given her situation.*

The majority of ribereño interview participants I met fell into the categories of Spanish speaking (mestizo), rural and poor. In these situations, access to education, healthcare and the formal labour market were severely limited because of

geographic remoteness and poverty. Women in this situation scored a median of 0.39 in the WA score and 0.44 in the GE score, reflecting poor achievement and substantial gender inequality. Compared to the above two scenarios, it seems as if geography as opposed to ethnicity was driving the higher WA Score: compared to the above situation, those in urban areas scored better than those in rural areas, regardless of their ethnicity. There was little difference in the GE Score between these two settings.

**Scenario 4: an individual who lives in an urban setting, regardless of ethnicity or wealth quintile**

*Christina is a nurse in Iquitos, she was born and raised in the city, and her husband is also from there. He is a moto-taxi driver. They both work very hard, sometimes taking up double shifts and night shifts, to put their three children through school. Christina is now pregnant with her fourth child and has to stay home to care for her family whilst her husband continues to bring in a wage. Sometimes her husband gets drunk and is verbally aggressive with her and the children when he is stressed about money.*

In Iquitos, there was an overwhelming focus on economic security through ‘hard work.’ It was normal for individuals who were city dwellers to work either multiple informal jobs, or a combination of formal and informal work. Many women of childbearing age were full-time caregivers in-between work, regardless of their educational background. It was also common for households to focus on education and ‘getting ahead’ for their children. In this scenario, the median WA Score was 0.21 and the GE Score remained notably high at 0.39. The lower WA score in urban-dwelling individuals with a more stable economic background may reflect greater educational, labour and health opportunities. Despite these opportunities, gender inequality remains high. This means that experiences of violence, differences in labour, as well as differences in decision making dynamics remain high despite a relatively higher mean women’s achievement score.

**Scenario 5: an individual who ranks the highest in wealth, is Spanish-speaking, and lives in an urban area**

*Monica’s parents were both pharmacists. She attended university along with her siblings, and is now a pharmacist in town, too. She met her*

*husband at university, and they live in a townhouse with their four children as well as taking care of her husband's elderly mother. Because she earns less than her husband, she has decided to work part-time so she can care for her home. Besides, her husband likes to be the main provider for the family.*

At the other end of the wealth continuum in an urban context, most individuals I interviewed were in professional or managerial employment, and had benefited from growing up in families who could afford good education. As discussed in Chapter 3, these individuals reflect outcomes of layered advantage throughout their life, from education through to employment and leadership opportunities, all of which feed into life achievements. The median WA Score was 0.09, which is notably lower than in any other scenario discussed. The GE Score remained high at 0.33 in these individuals, meaning that even at the higher levels of achievement, gender inequality remained an issue. On further deconstruction of the GE score in this scenario, I found that differences in labour preferentially affected the score, over decision-making and violence.

#### 6.4.1 Section Summary

The above scenarios have facilitated an insight into the various ways that women's achievement and gender equality can interact with ethnicity, geography and wealth to produce differing pictures of WA and GE Scores. Although these insights were not in-depth qualitative analyses, they provided a way to frame the WAGE score results in a general manner linked to my field observations. Interestingly, geography and wealth seemed to interact with the WA score to produce differing outcomes over various layers of social advantage. This is consistent with current development literature which links poverty – and, to a degree, geography – to individual achievements. However, differing combinations of poverty, geography and ethnicity did not seem to have the same effect on the GE Score. This reinforces how the phenomenon of gender inequality is distinct from that of individual achievement: the difference in average GE gaps scores between someone from a poor rural background and someone from a wealthy urban background is not as distinct as the difference in achievement.

The individualised scores facilitate a degree of analytical complexity that previous scores have not, quantifying the layered effects of social disadvantage on gender achievement and equality. My findings shed light on how an individual may experience women's achievements and gender inequality differently and to a differing degree depending on their background. Furthermore, the phenomena of *achievement* and *equality* may be embodied differently by different people. Whilst the above methodology is a long way from a fully individualised intersectional approach to quantifying gender achievement and equality, and does not fully overcome the use of grouping or categorisation of certain social characteristics of an individual, it helps to add a degree of nuance to the quantification of gender inequalities that previous attempts have not.

## 6.4 Discussion

In this chapter, I presented the results of the WAGE Score in more detail, demonstrating how it can be used to explore women's achievement and gender equality in Peru. I first interrogated the distribution of the women's achievement (WA) and gender equality (GE) scores at a population level, and looked at the association between these two components. I then grouped the WA, GE and WAGE scores by categories of social (dis)advantage: rural/urban location, ethnicity, and wealth. This facilitated the identification of gradients of (under)achievement and (in)equality in Peru, and how these were concentrated in particular geopolitical regions and in certain social strata. To deepen the descriptive analysis, and to explore the intersections between gender and other social inequalities in Peru, I took a mixed-methods approach to understanding how layered social disadvantage affects individual experiences of women's achievement and gender equality in Peru.

In this section, I take the opportunity to summarise the key findings, reflect on the implications of these findings, to explore how the WA and GE Score differed and why, and to detail the contribution of the WAGE Score to understanding women's achievements and gender equality in Peru.

### 6.4.1 Key Findings

The WAGE Score median value was 0.35 (IQR 0.24, 0.43), representing a 35% shortfall of women's achievements and gender equality in Peru. This consisted of a median WA Score value of 0.29 (IQR 0.13, 0.40), representing a 29% gap between actual and optimal achievements in *women's achievement* domains, and a median GE Score value of 0.40 (IQR 0.31, 0.49), representing a 40% shortfall in *gender equality* domains. I found that the distribution of the women's achievement (WA) and gender equality (GE) varied at a population level, and over groups of social (dis)advantage. Furthermore, I found that women's under-achievement and gender inequality concentrated in particular geopolitical regions and in certain



social strata, and that individuals will experience achievement and equality very differently depending on their background.

From the descriptive analysis, I drew the following key conclusions:

### **1. In Peru, there is a smaller *achievement* gap and a larger *inequality* gap**

In the ENDES 2015 population, I found a smaller *achievement* gap (29% shortfall in the WA Score) and a larger *inequality* gap (40% shortfall in the GE Score). This represents stronger overall performance in indicators of women's achievement, and greater overall gender inequality. Furthermore, the distributions of *achievement* and *equality* in the ENDES 2015 population were different, whereby the positive skew of the WA score demonstrated how many women had close to optimal achievements, and the more normal distribution of the GE Score demonstrated how most women in the ENDES experience some form of gender inequality. This could be explained by positioning the analysis in an historic context, and will be explained further in Section 6.4.3 below.

### **2. There was a positive correlation between the WA and GE Scores but a strong performance in women's achievements domain does not fully protect against gender inequality**

In the above analysis, I found a positive correlation between the WA and GE Scores (Spearman's rank correlation coefficient 0.48,  $p=0.00$ ). However, there was considerable change in quintile ranks between the WA and GE Scores in the 2015 ENDES population, indicating that those who perform relatively well in the WA Score do not always do as well in the GE Score and vice versa. Furthermore, a strong performance in women's achievements domain does not fully protect against gender inequality. I found that even in those who perform close to optimal in the WA Score, there are considerable gender inequalities which persist.

### **3. The WAGE Score was affected by gradients of socioeconomic inequality**

The WAGE Score was affected by categories of social inequality, including ethnicity, wealth and urban/rural location. This was most pronounced in the WA Score, which

demonstrated a steep gradient over categories of social inequality, and most likely represents that the score is comprised of indicators which are influenced by socioeconomic development. More favourable WA Scores were seen in wealthier quintiles, in urban areas, and in the Spanish-speaking ethnicity, whereas less favourable scores occurred in poorer quintiles, in rural areas, and in Indigenous ethnicities. The GE Scores demonstrated a lesser gradient over categories of social (dis)advantage, and gender inequality persisted to a degree in most sections of Peruvian society regardless of wealth, ethnicity, or geographic location.

#### **4. There was a concentration of under-achievement and gender inequality in certain parts of Peru**

Although WA and GE Score demonstrated different distributions, they followed a similar pattern and direction when compared over the above categories, which means that they were concentrated in particular geopolitical regions and in certain social strata in Peru. For example, the lowest wealth quintile demonstrated the largest WA and GE scores. This concentration was most apparent when mapping the WA and GE scores over the 25 *departamentos* of Peru, where certain more rural and under-developed regions were most impacted by women's under-achievement and gender inequality.

#### **5. An intersectional analysis highlights those most vulnerable**

Individuals experience achievement and equality differently depending on their background, and intersecting categories of social identity must be considered. Women from rural, Indigenous and poor backgrounds tended to experience both under-achievement and gender inequality. Whereas, women from urban, non-Indigenous, wealthy backgrounds scores much stronger in women's achievements and moderately better in gender equality. Gender inequality persisted over all categories and combinations of social (dis) advantage. Using an intersectional approach has helped identify those most affected by under-achievement and inequality and provide rudimentary explanations behind these results.

## 6.4.2 Application and implications of the WAGE Score

### Individual-level data

The WAGE Score was developed to facilitate a more nuanced exploration of women's achievement and gender equality at a sub-national level in Peru. It was designed so that data was aggregated horizontally (i.e. at the level of the individual) first, before aggregating vertically (i.e. grouping individuals). This meant that every individual was attributed a WA, GE, and WAGE Score, and that this disaggregated data could be re-grouped over various categories of social advantage or disadvantage to explore how women's achievements and gender equality varied in Peru. Through re-conceptualising the measurement of women's achievement and gender inequality to the individual level, the information derived may provide a more granular picture of gender in Peru. The WAGE Score is nimble enough to be able to identify the extent of women's achievement and gender equality, from the level of the individual through to the national level and over categories of social identity. The WAGE Score can also help in identifying the causes of gender inequality, especially in relation to intersecting areas of social disadvantage, and to help guide and monitor policies or interventions to reduce identified inequalities.

### Achievement versus Equality

Critiques of gender indexes have noted that certain approaches designed to measure inequality are blind to overall levels of achievement or development. Whilst some of these approaches are purposively 'agnostic,' in that they only set out to measure (in)equality and do not value overall levels of achievement, they lack the capacity to discriminate between equality as a result of *equally poor achievements* and equality as a result of *equally strong achievements*. This difference, however, is an important distinction to make: an individual who has a small equality gap because *neither* she nor her partner have education is most likely a very different person to an individual who has a small equality gap because *both* she and her partner have education. The WAGE Score, through its construction methodology, has attempted to overcome this by first quantifying women's

achievement, and subsequently assessing gender equality in relation to the individual woman.

The WAGE Score quantifies both individual achievement in relation to others, represented by the WA Score, *and* equality between women and men, represented by the GE Score. They can be interpreted as a shortfall in achievement (WA Score) or a lack of equality (GE Score). When combined together, the WAGE Score can be interpreted as a shortfall in both women's achievement and gender equality compared to an ideal scenario of high achievement and complete equality. This approach has meant that I have been able to report on aspects of women's achievement and gender equality separately and consider both how they differ and how they combine into the overall WAGE Score.

The pattern of the WA and GE Scores, and the dynamics between them, show that, although women's achievements and gender equality are *inter-related* constructs, they cannot be treated as the *same* construct. This has important implications for the construction of gender indexes, as it signifies that women's achievements and gender equality must be considered as different but complimentary areas as the index is developed, and that important information may be lost by conflating them too readily. Further, these findings support the need for a clear conceptual framework – preferably based in qualitative research and built from the existing literature – to help guide the measurement and construction of these two areas.

#### Social inequalities, women's achievements and gender equality

The socioecological analysis of women's achievement and gender inequalities means that individual experiences are positioned within a discussion around broader societal-level influences. In the above analysis, the WA, GE, and WAGE scores demonstrated differences over certain categories of socioeconomic status. In all scores, there was a significant rural-urban divide, with poorer WA and GE scores identified in rural areas compared to urban areas. There was also a difference in scores between ethnicities, where Spanish-speakers consistently demonstrated more favourable women's achievements and gender equality compared to Quechua, Aymara and other Indigenous groups. Although Quechua

and Aymara are also Indigenous ethnicities, the worst performing group overall was the 'other Indigenous' category, which consisted of mainly Amazonian ethnicities. So, even in the minority Indigenous ethnicities in Peru, there seemed to be a gradient of achievement and equality emerging. Of the social categories, wealth seemed to affect the WA and – to a lesser degree – GE scores, with a consistent step-wise gradient demonstrated between quintiles of wealth and the WA and GE scores. Furthermore, both the WA and GE scores were seen to concentrate in particular geopolitical regions of Peru, which may be linked to the socioeconomic development status of these areas.

The WA score represents overall, or absolute levels of achievement in the areas of education, employment, health access, health empowerment, age, and attitudes to wife beating, all of which are correlated with each other. The indicators predominantly reflect a dominance of socioeconomic measures, such as education and employment. The GE score, on the other hand, reflects the concept of equality in processes or outcomes between the interview participant and her male partner. The measurement of equality is 'blind' to overall levels of achievement, in that an equal outcome could represent equally poor or equally strong performance between partners in the measured domains. Thus, the GE score may not be influenced as directly by socioeconomic status as the WA score. This is supported by current research that shows how, internationally, per capita income is not associated with gender equality in *social institutions* (Katseli, 2007). However, the GE score does continue to decline with increasing wealth, and may indicate other societal influences on individual experiences of gender equality (such as attitudes or, decision-making processes) that are influenced by socioeconomic status. The differences between WA and GE scores will be explored further below

#### 6.4.3 Placing these findings into context

The difference in WA and GE scores by socioeconomic categories may be explained by the items included in the scores themselves, and the way in which they reflect broader gradients of socioeconomic advantage or disadvantage. It is therefore important to place these results into a broader consideration of the historical, social and political context of Peru.

The WA Score had a value of 0.29 (IQR 0.13, 0.40), representing a significant gap in actual and optimal achievements over the selected *women's achievement* domains. This could be expressed as an average of 28% shortfall in achievement over the whole population. This may be explained by the broader economic and political context of Peru and how this influences key women's achievement indicators. As an Upper Middle Income Country with a GDP of 6,045.65 USD in 2016, Peru's overall development indicators such education are strong (World Bank, 2017). As the WA Score is derived from key socioeconomic indicators such as education and labour force participation, these items will naturally reflect the overall development situation of the country. So, overall women's achievements are relatively strong, although there is still a distance to go.

The GE Score reflected a larger gap in *gender equality*, with a median GE Score value of 0.40 (IQR 0.31, 0.49). This could be expressed as a shortfall from absolute gender equality of 40% in the ENDES population. In the context of a modern Peruvian society which exists in an historical landscape of inequality, this gap is understandable. Peruvian society is built on a hierarchy of power, economic, ethnic and gender relations (Boesten, 2010; Cameron & Mauceri, 1997; Ewig, 2010; Motta, 2011). Socioeconomic inequality in Peru is reflected by a Gini Coefficient of 45.3 (down from 56.4 in 1999) and an Inequality-adjusted Human Development Index of 0.563 (World Bank, 2017 ). Furthermore, contemporary gender dynamics replicated through Latin America reinforce unequal gender roles, and are reflected by hegemonic masculinity: Peruvian *machismo* includes sexual virility, physical and sexual violence, and homophobia (Caceres, et al., 2002).

These results may also be contextualised by the qualitative findings presented in Chapter 3, where I observed distinct achievements, gender roles and inequalities. Between communities of the Lower Napo River and Iquitos, I observed a clear gradient in women's achievements in key areas such as education, labour, and access to healthcare, consistent with the quantitative findings presented above. However, the local picture of gender equality was more complex. In situations of extreme resource shortage and poverty, as I saw in the LNR communities, life opportunities were severely limited for both women and men. Mostly, both women

and men assumed similar employment (subsistence farming) and held similar education levels.<sup>19</sup> Overall, in these ‘extreme’ settings, I saw a relative equality in achievement between women and men, due to equal *under-achievement* of key gender indicators. Because of the relative heterogeneity of opportunity in Iquitos, I observed a greater range of gendered outcomes, and a greater diversity of ‘equality’ outcomes.

The stark gradients of women’s achievements, as summarised by the WAGE score, reflect the ingrained social hierarchies of Peru, and were also embodied by research participants through internalised stigma, on the one hand, and an extended form of social mobility aspiration, on the other. Despite many interview participants coming from Indigenous backgrounds, they fervently established their ethnicity as mestizo, through markers of clothing and the dominant Spanish language. Ribereños demonstrated consistent aspirations to ‘make it’ in the city of Iquitos (or, better, still Lima) and a significant amount of urban migration was occurring from rural to urban locations. In Iquitos, there was an acute collective desire to establish financial security for the family and ensure the best life opportunities for one’s children. This form of intersectional social mobility and converse social stigma is widely recognised. For example, Babb (2012) discusses how Andean campesinos and Amazonian riverenos (peasant workers) have traditionally been marginalised, positioned as ‘the other’, ‘different’ and even ‘exotic’ in comparison to mainstream *mestizos* or *criollos*<sup>20</sup>, thus emphasising their ‘separatedness’ from the majority. This has led to a degree of contempt for markers of ethnic identity self-replicated and reinforced within poor, rural communities (Ames, 2013). The marginalisation of poor, rural, ethnic minorities intersects with gender where, for example, ethnic women who are less literate, less mobile, and whose primary language is not *Castellano*, have less access to valued cultural mixing (*cultural mestizaje*) and thus are positioned as more ‘savage’ (Babb, 2012; de la Cadena, 1995). Therefore, social mobility can be conceptualised in Peru as more than simply ‘getting ahead economically,’ it incorporates the intersections of gender, ethnicity, class and geography, too.

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<sup>19</sup> However, some women shared that equality of education was only a recent phenomenon: generations ago, when education was less available or more expensive, it was generally the case that boys were sent preferentially than girls.

<sup>20</sup> *Criollo* is a term used to refer to a Peruvian of European descent.

### 6.4.3 The intersecting effects of social inequalities on women's achievement and gender equality

As recognised in Chapter 3, traditionally, intersectional analyses have been performed qualitatively. Analysis places the individual at the centre and subsequently explores how intersecting identities of oppression interact through individual experiences. Although, by definition, it embraces complexity and resists simple categorisations of identity, intersectionality's open-endedness is characterised by a sense of ambiguity and uncertainty, which limits its overall understanding and impact (Chow, 2016; Gonick, 2003). At present, although an intersectional analysis is necessary to understand women's position in society in relation to each other and in relation to the state (Boesten, 2010), the field of intersectionality is restricted by lack of readily quantifiable data and the framework of analysis remains broad and unclear.

A quantitative approach exploring layered social disadvantage and its effects on gender achievement and equality could provide a means to partially address this complexity. The WAGE score enables re-aggregation of individual-level data over multiple layers of social identity, facilitating a quantitative approach to intersectionality: the exploration of gender over layers of ethnicity, geography, and wealth. This means that, as demonstrated above, the layered effects of social advantage disadvantage on women's achievement and gender equality can be examined. The WAGE Score demonstrated that the phenomena of achievement and equality may be embodied differently by different people. Placing the individual at the centre of the analysis meant that various aspects of achievement and equality, and how these varied over social identities, could be explored simultaneously. So, bringing together my qualitative observations with the quantitative WAGE score, the scenarios I selected represented the intersecting and complex identities that women navigated in rural and urban Loreto, and facilitated a discussion on the various ways that women's achievement and gender equality interacted with ethnicity, geography and wealth to produce differing pictures of WA and GE. Whilst the WAGE methodology is a long way from a fully individualised approach to quantifying gender achievement and equality, and does not fully



overcome the use of grouping or categorisation of certain social characteristics of an individual, it helps to add a degree of nuance to the quantification of gender inequalities that previous attempts have not. As such, the above approach may be a starting point from which intersecting inequalities can be further explored quantitatively, or a technique to support quantitative advances in the field of intersectionality.

#### 6.4.4 The shape of inequality

The relationship between gender equality scores and socioeconomic development has been studied at a population level, where the association between the two has been represented by an S-shaped association (Eastin & Prakash, 2013). Modelling first performed by Kuznet in the mid twentieth century demonstrated that as an economy developed, market forces would first increase and then subsequently decrease *economic* inequality within a country (Bacha, 1977). This curve therefore took the shape of an inverted U: as economic growth (x-axis) increased, economic inequality (y-axis) increased and then decreased. Specific to *gender* inequality, Eastin and Prakash demonstrated that, instead of a linear relationship between the two variables, the effect of development on gender equality is contingent on the level of development itself, wherein an S-shaped relationship between economic development and gender inequality is seen (Eastin & Prakash, 2013). At initial stages of economic development (defined arbitrarily as per capita income, PCI, below \$4,000), gender equality will increase due to increased living conditions and employment opportunities for all. The second stage of development (PCI between \$4,000 and \$8,000) is marked by industrialisation, out-migration of males, and divergent employment opportunities, which sees a decline in gender equality. Finally, the third stage of development (PCI > \$8,000) is associated with greater education and employment opportunities for women as well as the diffusion of liberal social norms fostering gender equality (ibid.).

Whereas Eastin and Prakash's study explored the relationship between national economic development and gender equality, the WAGE score was designed to test the individual-level relationship between quintiles of individual/household wealth (as a proxy for socioeconomic status) and women's achievement and gender

equality. At the individual level, what can be seen through the WAGE Score is a step-wise decrease in both the WA and GE scores over increasing quintiles of wealth, which is not consistent with the S-shape described above. The different patterns may be explained by a number of factors. First, results may differ between the individual and aggregate/population levels (Subramanian, et al., 2009). In addition, the above study was performed over time and over multiple countries, whereas my research focuses on cross-sectional analysis of Peru; so, the difference in findings may be a reflection of within- versus across-country differences. Second, Eastin and Prakash's measures of gender equality at the populations level were based on the UN Gender Development Index and Gender Empowerment Measure, which differ from the WAGE Score and are more focused on economic and political indicators. Third, the conceptualisation of gender equality in the aforementioned study did not tease-out the differences between achievements and equality and how these inter-relate. Although the authors linked gender equality with broader social and cultural influences, the measures did not necessarily reflect these. So, although the paper called for more detail in exploring the association between gender equality and economic development, there is a danger this analysis could lead to the perception that gender equality may be 'solved' by economic development alone. The findings from the WAGE score, however, demonstrate that in Peru, improving indicators of socioeconomic wellbeing may help women's achievements but do not completely overcome gender inequality. Although Eastin and Prakash's study yielded different results to the WAGE Score, it facilitated insights into the association between gender and development at a macro-economic level and, in combination with the WAGE Score, may help in the overall understanding of the complexities of women's achievement, gender equality, and economic development.

Returning to the socioecological model first introduced in Chapter 1, it seems that it is equally important to explore both achievement and equality hand in hand, and to do so over various levels of analysis, to ensure that we not only understand gaps in achievement and gender inequalities but can better target policy and programme responses for individuals and society. This means that focusing on improvements in women's overall achievements (linked to economic development) may not necessarily translate into improvements in gender equality; further

systematic and sociocultural work must be done to address the drivers of inequality, whilst simultaneously increasing levels of development.

## 6.5 Conclusion

This Chapter has presented the results of the WAGE Score, identifying within-country gradients of gender achievement and equality. By deconstructing the WA, GE and WAGE scores by socioeconomic categories, and exploring the relationship between layered social disadvantage and gender, the concepts of achievement and inequality were further understood at the sub-national level and over layers of social (dis)advantage.

The WAGE Score varied notably over categories of geography, ethnicity and wealth. Although this may represent the WAGE methodology preference for socioeconomic indicators in the index construction, it may also reflect genuinely different attitudes and experiences of women's achievements and gender equality in these key social groups. The WA and GE Scores followed similar patterns when analysed over these socioeconomic categories, indicating that both inequality and underachievement were concentrated in certain social groups in Peru. However, the difference in WA and GE scores at the individual level may reflect differing phenomena embodied in individual experiences. Overall the picture of achievement and equality in Peru must be examined using multiple levels of analysis, as originally captured by the socioecological models introduced earlier in this thesis.

By regrouping scores in a manner that facilitates the exploration of gender achievement and equality in relation to layered social disadvantage from the perspective of the individual, I was able to undertake a basic intersectional analysis. Although this approach falls short of a fully intersectional analysis, which recognises that human lives cannot be reduced to categorical identities (Hankivsky, 2012), it provides a starting point from which to explore how quantitative methodologies can be better adapted to analyse gender achievement and equality from an intersectional perspective.

The results are the start of better understanding women's achievement and gender equality in Peru so that suitable actions can be taken to improve achievement and equality for all. Whilst the WA score may represent overall improvements in development, the GE score is less sensitive to changes in socioeconomic indicators.

Therefore, whilst increasing levels of development for both women and men is important, it seems that focusing on wider, more systemic social and attitudinal change, for example by addressing cultures of *machismo*, will be necessary to see shifts in the GE Score. To reflect on these findings and to summarise the body of work in this thesis, Chapter 7 will present a summary of methods and findings.



## CHAPTER 7: SUMMARY AND DISCUSSION

The aim of this thesis was *to build a composite index that reflects gender achievements and equality at an individual level, using existing household survey data*. To do so, the thesis addressed key practical and conceptual challenges, such as using local qualitative research to identify domains and guide indicator selection, measuring gender equality using individual-level data, exploring the gap between actual and optimal levels of achievement, and understanding the differing phenomena of achievement and equality and how to combine them in a single index.

Index construction comprised five parts. These followed the methodological stages of multidimensional index construction first introduced in Chapter 1, Table 2. First, I performed a critical evaluation of existing international compound women's achievement and gender equality metrics after reviewing existing literature. Second, I used qualitative interviews and focus group discussions to explore local constructs of women's achievement and gender equality specific to the Peruvian Amazon, and organised these into thematic domains. Third, I identified available gender indicators which reflected domains of gender achievement and equality in the ENDES 2015 survey, and assessed their content and construct validity using cognitive interviews. Fourth, I used Exploratory and Confirmatory Factor Analysis to decide on item weights and to aggregate selected indicators into a multidimensional measurement of gender achievement and equality, the WAGE Score. Finally, I presented a descriptive analysis of WAGE Score results for Peru, identifying within-country gradients of gender achievement and equality.

In this final chapter, I summarise my key findings, reflect on the results in relation to the literature on gender in Peru and gender indexes more broadly, discuss the limitations of my research, outline how the thesis has contributed to knowledge, and discuss possible next steps using the WAGE Score.

## 7.1 Summary of Main Findings

### 7.1.1 Current international, compound women's achievement and gender equality indexes

As increasingly recognised health and development priorities, women's achievements and gender equality are conceptualised and measured through a range of international, compound metrics. I identified a total of 25 international, compound measures of women's achievement and gender equality, and included ten in the final review following the application of inclusion and exclusion criteria. The indexes selected were: the African Gender and Development Index (AGDI), the Gender Equity Index (GEI), the Gender Equitable Men Scale (GEMS), the Gender Inequality Index (GII), the Global Gender Gap Index (GGGI), the Relative Status of Women (RSW) Index, the Social Institutions and Gender Index (SIGI), the Survey-based Women's emPowERment index (SWPER), the Women's Empowerment in Agriculture Index (WEAI), and the Women's Economic Opportunities Index (WEOI).

In these ten scores, there were a variety of approaches to index construction. The conceptual formulation of each index was shaped by a range of factors, including organisational and academic backgrounds of the index and the purpose or application of the index itself. The ten indexes I identified introduced a range of terms including gender, women, (in)equity, (in)equality, attitudes and empowerment. However, there was a disconnect between the gendered language used in the indexes and the actual measures contained within them. Furthermore, indicator selection was limited by data availability. This meant that, at times, there was a trade-off between local relevance and internationally adaptable indicators. Finally, the majority of indexes, through their focus on international comparability, reported data at a national, aggregate level. This limited the analysis to the national level and was not sensitive to within-country gender inequalities.

I mapped the indicators contained within each index to the Women's Empowerment Matrix first proposed by Wieringa (Charmes & Wieringa, 2003; Wieringa, 1994). The Women's Empowerment Matrix differentiates between physical, sociocultural, religious, political, legal and economic domains of



empowerment. Indicators varied in terms of whether they used absolute (women's achievements) or relative values (ratio of men to women, for example). The indicators that mapped to the physical domain included AFR, MMR, other measures of reproductive health and family planning, harmful cultural practices and violence, child health and HIV, life expectancy and sex-ratios. The sociocultural domain mainly encompassed education indicators, including a level of educational attainment, literacy rates, primary, secondary and tertiary enrolment rates, and school life expectancy. Very few indexes used indicators of religious empowerment. The most widely recognised indicator of the political empowerment domain was representation of women in national parliament, but indicators of leadership and participation at the community level were increasingly included. The legal domain measured legal and social institutions, including formal and informal laws that restricted women's and girls' access to justice and empowerment, as well as labour rights and human rights. Indicators of economic empowerment comprised a large proportion of overall indicators, and included measures of economic activity and labour, income and finances, resources and assets, as well as the business and legal environment.

The indexes identified represent significant advancements in the field of women's achievement and gender equality measurement. Through understanding their methodologies, and arranging each of the indicators contained in the scores into the Women's Empowerment Matrix, I was able to identify internationally-recognised areas of women's achievement and gender equality and establish a theoretical base from which to commence the construction of the Women's Achievement and Gender Equality score.

### *7.1.2 Somos Iguales: understanding local constructs of gender achievement and equality in Amazonian Peru*

The first step in the construction of the WAGE score was to perform qualitative research to gain insights into locally salient constructs of women's achievement and gender equality. I undertook 46 semi-structured qualitative interviews with women from rural (LNR) and urban (Iquitos) locations and three focus group discussions with groups of service providers in the region.

I organised information about the local conceptualisations of gender equality into twelve domains. Using the WEM framework, I mapped local constructs to domains and indicators contained in existing gender indexes: education, employment, financial empowerment, domestic duties, decision-making, health, family planning, leadership, community participation, age differences and age at first union and intercourse, and violence against women.

Interview participants expressed concepts of gender equality in terms of equal opportunities, human rights, and transformation of male and female roles. The word *machismo* was a term used locally to identify sexist male behaviours, and was associated with violence, hyper-virility and alcohol use. Women's roles were characterised as focused on others' wellbeing and often involving multi-tasking. This translated into more domestic roles, unpaid labour, and caregiving. Despite differing roles and identities, there was a strong sense of equality through complementarity, and partnerships were formed in a strong recognition of the value of the traditional family unit.

Some participants described how having more women achieving positions of leadership may benefit other women in the community, and promote gender equality and empowerment. Beyond equality of achievement, gender equality was viewed as equality of opportunities and equality of attitudes. This reflects the need for evolving measures of women's achievement and gender equality that reflect process and attitudes as well as outcome measures themselves.

It also became apparent when discussing gender constructs with research participants that two distinct conceptualisations were emerging: achievement and equality. I found that women embody certain stand-alone or 'absolute' achievements as an individual, which may reflect an aspect of personal empowerment. These achievements are gendered, in that they reflect broader aspects of gender and development in society, but are separate to the experience of *equality*. Gender equality, at the individual level, may be conceptualised in relation to one's partner or other men close to the individual. These may be due to differences in achievement, such as the difference in education levels, differences in decision-making between a woman and her male partner, or experiences of

violence. These gender equality differences may occur independently of an individual woman's overall achievements.

### 7.1.3 What are the available individual-level indicators of women's achievement and gender equality, and how valid are they?

I reviewed the 3,549 items contained in the 2015 ENDES survey and identified, then evaluated 43 potential women's achievement or gender equality indicators. The domains that guided the extraction and organisation of ENDES items included: education, employment, domestic duties, financial empowerment, asset ownership, household decision-making, age at first marriage and sexual activity, health, contraception use, VAW, political representation, and community group participation.

The cognitive interview process provided a method to link existing ENDES items to deeper qualitative information about local perceptions and lived realities pertaining to women's achievements and gender equality. Overall, there was a relatively strong understanding of the questions in the education, employment, age differences, and family planning domains. There was a lower level of understanding in the domains of decision-making, healthcare access, political representation and community participation. The domains that were more sensitive or difficult to discuss in public included violence and sexual health; despite this, participants were very open and constructive during our conversations. Following cognitive interviews, I dropped three further indicators (home and land ownership, caregiving, and domestic paid labour) that either lacked information or the ability to discriminate meaningful outcomes in the local context.

There was a discrepancy between the *private* and the *public* measureable indicators and domains, which may reflect a strong socioeconomic discourse in gender metrics, where gender and women's empowerment have traditionally been framed in terms of their economic productivity and participation in the public sphere (Folbre, 2006; Thomson, 2009). This may also reflect a divide between global constructs and local, smaller-scale community dynamics where the division between public and private life is less distinct (Bowser & Patton, 2004; Espinoza,

2000). There was also a challenge in reconceptualising *collective* concepts of community participation, leadership and empowerment to the *individual* level; suggestions arising from cognitive interviews included strategies to explore how or if an individual identifies as a leader, individual belonging to certain community roles or positions, whether an individual fulfils managerial or other leadership roles in work, or attitudes to and knowledge of gender equality in politics. These ideas are supported by a range of literature on empowerment which positions this phenomenon as multi-level, from the individual to the collective (Alkire, et al., 2013).

#### 7.1.4 Can women's achievement and gender equality be measured at an individual level?

The WAGE Score was developed to facilitate a more nuanced exploration of gender achievement and equality at a sub-national level. It was designed so that data was aggregated horizontally, facilitating the construction of the WAGE score at the level of the individual. Through re-conceptualising the measurement of gender achievement and inequality for individuals, the information derived from the score is disaggregated and thus can provide a more granular picture of gender in Peru. This individual-level information has the potential to then be recombined over various categories of identity or social (dis)advantage.

The WAGE Score evolved to quantify and value both individual *achievement* in relation to others *and equality* between women and men. It did so by calculating the gap between *actual* and *optimal* individual achievement and gender equality, thus highlighting how far away from an ideal scenario an individual is positioned, and establishing a benchmarking standard that is applicable across contexts. This meant that two separate but inter-related measures were developed which then were combined into a single score.

I used Exploratory Factor Analysis to understand the underlying structure of the ENDES 2015 dataset and Confirmatory Factor analysis to further refine the indicators. A total of 17 women's achievement and 15 gender equality items formed the basis of quantitative score construction. Of the original 23 items in the

WA score, I dropped five items (*visit to health facility within the last 12 months, coverage by health insurance, knows of contraception method, age at first marriage, getting permission to go to health service*) and reclassified one item (*unmet need for family planning*) to the GE Score. Of the 18 items in the GE Score, I dropped three (*differences in education, age differences > 10 years, household head*). This was described in Tables 19 and 20, in Chapter 5. Women's achievement indicators were arranged in four domains, reflecting education, employment, health empowerment, and attitudes to violence. Gender equality indicators were arranged into three domains, representing labour differences between partners, imbalances in decision-making, and experiences of violence.

#### 7.1.5 What is the picture of gender achievement and equality in Peru?

The WAGE Score had a median value was 0.35 (IQR 0.24, 0.43). The WA Score median value was 0.29 (IQR 0.13, 0.40), representing a 29% gap in actual and optimal achievements over the selected *women's achievement* domains. The median value of the GE score was 0.40 (IQR 0.31, 0.49) reflecting a 40% gap in *gender equality*.

The gaps can be interpreted as a shortfall in achievement (WA Score) or a lack of equality (GE Score). When combined together, the WAGE Score can be interpreted as a shortfall in both women's achievement and gender equality compared to an ideal scenario of high development and complete equality. In Peru, I found that the gap in gender equality was larger than the gap in women's achievements, meaning that gender inequality was greater than the measured under-achievements. This could be explained by the fact that the WA Score is derived from key socioeconomic indicators such as education and labour force participation, reflecting the overall relatively strong development situation of Peru; whereas the GE Score, reflecting gender inequality, may reflect greater social and historical inequality in Peru. This will be discussed further below.

The WA, GE, and WAGE scores demonstrated a gradient of inequality over categories of geography, ethnicity and wealth. There were larger differences in achievement and equality in rural areas compared to urban areas, and in ethnic

minorities compared to the Spanish-speaking majority. Wealth seemed to be the strongest driver of the differences in achievement and equality, with a consistent step-wise gradient demonstrated between wealth index quintiles and the WA, GE and WAGE scores. Although the patterns between WA and GE scores differed, the trend over socioeconomic categories represents a concentration of both *under-achievement* and *inequality* in certain marginalised social groups in Peru.

From an individual perspective, intersecting influences of geography, wealth and ethnicity combine to produce different WAGE score results. Using qualitative insights gleaned from my fieldwork, I was able to further contextualise these results. Using this approach, the differing results depending on one's background support the fact that analysis of women's achievements and gender equality must consider intersecting categories of social advantage and disadvantage; aggregating results at a national level loses valuable information about the true picture of women's experiences. The WAGE Score facilitates the analysis of women's achievements and gender equality at an individual level, and may help to shed more light on the different experiences of women at a sub-national level.

## 7.2 Positioning the results in a national and international context

### 7.2.1 National context

Taking a historical, political and sociological perspective when assessing current patterns in women's achievement and gender equality in Peru allows us to place gender inequalities in a broader context. For example, the steep gradient in WA (and less so in GE) scores by ethnicity may represent systematic marginalisation and structural barriers to achievement in areas such as education and employment by those who recognise themselves as Quechua, Aymara or another Indigenous Peruvian identity. In turn, these inequalities and systematic barriers may be explained by colonialization and deep-rooted racism against ethnic minorities, from the Spanish conquest of the Indigenous civilization, to agrarian slavery which was widely practiced up to the early 20<sup>th</sup> century, through to the current-day exclusion of linguistic and cultural minorities (Cameron & Mauceri, 1997; Manrique, 1995). My qualitative research confirms the ongoing racism and inequities faced by ethnic minorities were born heavily by women (Chapter 3). Situating the WAGE score within a historical analysis and linking the quantitative results to qualitative findings enables a deeper understanding of the experiences of Peruvian women. For example, in modern day Peru, inequality based on gender, race, and class is embedded in society and mimicked through all institutional levels (Boesten, 2010; Cameron & Mauceri, 1997; Ewig, 2010). It is therefore unsurprising that a within-country analysis of women's achievements and gender equality in Peru, facilitated by the WAGE score, reveals distinct gradients of under-achievement and inequality over different categories of social disadvantage.

Whilst the WA score varied distinctly over geography, ethnicity and wealth, the GE Score had a less distinct gradient. This suggests that women's achievements are more sensitive to overall levels of economic development, and, on the flipside, that gender inequality exists to a greater degree, permeating all aspects of Peruvian society. The WA Score, as an indicator that contains measures of education, employment and health empowerment amongst others, is closely linked to economic development. The National Household Survey of Peru (La Encuesta

Nacional de Hogares, ENAHO) 2002 revealed distinct economic, ethnic and geographic divides in schooling and employment in Peru (INEI, 2002). An increasing phenomenon of uneducated and unemployed youth, labelled locally as ‘ninis’ (*ni estudian, ni trabajan*), reveals an over-representation of women, exaggerated in rural areas such as Ucayali and Madre de Dios (Peñaranda Castañeda, 2017). The GE score, on the other hand, which reflects differences between partners, differences in decision-making and experiences of partner violence, did not seem to be as affected by categories of social disadvantage as the WA score. This may represent the widespread acceptance of social inequalities, especially gender, including the omnipresence of forms of harmful gender stereotypes such as *machismo*. Many participants in qualitative interviews reinforced *marianismo* stereotypes, over-valuing the role of the woman in the domestic sphere which, in turn, fed into *machismo* stereotypes and sexism (Chapter 3). Persisting gender inequality between partners and in families demonstrates “...that authoritarian forms of patriarchy are fostered in and reproduced by the family, making this more than metaphorically the “breeding place” of a nation trapped in racialised and gendered inequalities” (Boesten, 2010, p. 4).

A challenge I encountered when measuring women’s achievements and gender equality at the individual level was the distinct divide between attitudes expressed towards gender equality and reality of lived experiences of gender inequality. Recent opinion-based surveys suggest that the majority of Peruvians support gender equality in education, employment, and political representation (UNESCO, 2012). As recognised in Chapter 3, there were clear contrasts between attitudes expressed in the aforementioned survey and the reality of national indicators. Likewise, in my research, I encountered a similar division between attitudes and reality: most men and women interviewed supported gender equality yet the majority were aware of stark prevailing inequalities.

### 7.2.2 International landscape: the Sustainable Development Goals

At an international level, the WAGE Score may provide valuable information about the state of women’s achievements and gender equality that aligns with international development targets such as the Sustainable Development Goals



(SDGs). The SDG targets (see Section 1.4.6), whilst representing a broader and deeper scope than the Millennium Development Goals, focus solely on women's and girl's empowerment and not on gender equality as the wording of the goal suggests. Focusing on empowering women and girls is an important and recognised development priority, however this comes at the expense of transforming gender roles inclusive of men. The WAGE score, in comparison, not only attempts to measure women's achievement, but also explores gender equality by measuring differences in outcomes and processes between male and female partners.

Despite this, there are some clear areas of alignment between the WAGE Score and SDG5. These include the measurement of violence, sexual and reproductive health, and economic resources. Although education and health are not explicitly covered by SDG5, they are contained in SDGs 3 and 4, as well as important to other SDGs. In addition, SDG5 recognises unpaid care and domestic labour and opportunities for leadership. Whilst these measures were not contained in the WAGE score, they were recognised as essential aspects of women's achievement and gender equality throughout my qualitative research (Chapters 3 and 4).

The inclusion of domestic labour and leadership opportunities in the SDGs reinforce the need for appropriate data on these topics to be collected via ENDES and the DHS Programme. The Bill and Melinda Gates Foundation, in a recent editorial, highlighted current global efforts to increase availability of women's data and bridge the gender data gap (The Bill and Melinda Gates Foundation, 2016). Initiatives such as Data2X and Equal Measures 2030 aim to transform data collection systems towards gender equality, through both conceptualising and collecting data on new indicators and reorganising existing data so it is more actionable by policy makers (Equal Measures 2030, 2017; UN Foundation, 2017). A recent report by Data2X highlights the lack of current gender-disaggregated indicators to monitor the progress towards the SDGs (Data2X, 2017). As I have in the WAGE score, they suggest the use of household surveys such as the DHS to collect data on certain gendered indicators across the span of the SDGs. However, they have not yet proposed a strategy for how data collection in areas such as domestic labour or leadership may occur.

### 7.2.3 Comparison with existing indexes

The WAGE score construction process included an evaluation of existing international compound measures of women's achievement and gender equality. The WAGE score builds upon certain aspects of indexes and has attempted to improve upon some of the identified limitations. Of the extant indexes reviewed, the WEAI and SWPER bore conceptual and methodological similarities that require further discussion.

The WEAI set an academic precedent for a WAGE-like methodology by clearly defining and measuring both women's empowerment and gender parity within a single index, and doing so at an individual level. First, women's empowerment in agriculture is quantified over five domains including production, resources, income, leadership and time (Feed the Future, 2014). Subsequently, an indicator for gender parity is calculated by comparing whether an individual woman's level of empowerment is equal to or greater than her partner (ibid.). This meant that the score could be calculated for each woman at an individual level, and that both empowerment and equality could be quantified and thus analysed simultaneously. However, the WEAI differed from the WAGE in that it employed a threshold approach, used a specifically designed survey tool and not existing data, and was limited to the field of empowerment in agriculture (Alkire, et al., 2013). In the WEAI, 'adequacy' of achievement in each of the domains of empowerment meant that an individual's achievement exceeded the threshold level in 80% of the indicators overall (Feed the Future, 2014). These thresholds were determined for each indicator through a combination of existing literature and expert insights (Alkire, et al., 2013). This threshold model differed from the WAGE score, which compared the gap between actual and optimal achievements. By setting the optimal achievement level as the highest possible score for each indicator, I enabled the comparison against an international gold standard of absolute achievement and equality, and refrained from making any value judgements about where a particular threshold may lay for the indicators. An additional limitation of the WEAI is that it uses a specifically designed survey tool relevant only to agricultural settings. Whilst a contextually-specific tool is necessary for a thorough analysis, it cannot necessarily be generalised to other settings worldwide. As such, it does not allow

for the same breadth of analysis as using existing indicators contained in the DHS survey programme.

The SWPER, on the other hand, was constructed from existing DHS measures of women's empowerment (Ewerling, et al., 2017). The SWPER, whilst varying methodologically from the WAGE (which will be discussed further, below), was developed to overcome two of the key challenges that I also identified in this thesis. First, it uses DHS household survey data, tapping into a globally available resource for quantifying women's empowerment and gender equality. Given the increasing availability of gender-disaggregated data globally (UNECLAC, 2002), there is a need to reconsider how existing, open-source data can be best used to explore these complex phenomena (Equal Measures 2030, 2017; UN Foundation, 2017). Second, through the calculation of individual-level measures, it enables more nuanced, within-country analyses (Ewerling, et al., 2017). The SWPER indicators were first aggregated at the individual level, prior to further vertical aggregation. This, in theory, enables a more nuanced exploration of women's disempowerment at a within-country level. However, based on available publications, the SWPER has not yet done this (Barros, et al., 2016; Ewerling, et al., 2017).

Furthermore, because the SWPER is derived from individual-level DHS survey data, the individual measurement of women's empowerment can also be used as an outcome or as a determinant of health (Ewerling, et al., 2017). As recognised by Barros and colleagues in their SWPER background paper, there have been previous attempts to quantify women's empowerment from DHS data, and subsequently to use this as an explanatory variable of selected health outcomes (Barros, et al., 2016). Of note, they reference Jennings and colleagues, who selected nine indicators of empowerment and arranged these into three domains: economic (earnings, financial decision-making, household purchase decisions), socio-familial (decision on health care and family visits, attitudes to violence), and legal (home and land ownership) (Jennings, et al., 2014). This score was then used to examine the association between women's empowerment and male involvement in antenatal care (ibid.). The SWPER, on the other hand, is compared with the outcome of child stunting, a chronic malnutrition indicator contained in DHS surveys (and linked to individual women's data) to examine its construct validity.

The association between women's empowerment and child nutrition has been extensively researched; there is an understanding that women who are more 'empowered' are more able to negotiate adequate nutrition for their children (Abu-Ghaida & Klassen, 2004; Commission on Social Determinants of Health, 2008; McDonald, 2000). As such, the outcome of child stunting may be used as a means to validate the measurement of women's empowerment where the upstream – or exploratory – variable of women's empowerment may be compared with well recognised – downstream – outcome indicators such as child stunting. Because of time limitations, I was not able to link child data to individual women's data in the ENDES 2015 dataset, but this is a necessary next step towards the validation of the WAGE Score.

The SWPER, was, in other ways, limited from a conceptual and methodological standpoint. Conceptually, the SWPER articulated the goal of measuring women's empowerment. However, practically, the SWPER included both measures of empowerment (reflected by individual achievements) and gender equality (reflected by decision-making processes and differences between partners). These were combined into a single indicator without clear conceptual explanation<sup>21</sup>, nor a development of the concept of empowerment and how it would be represented by these measures. Practically, like the WAGE score, the SWPER was limited by the available DHS data across 34 African countries. Although the authors utilised Principal Component Analysis to refine and combine available indicators, there was an absence of the consideration of the local context or of the validity and local significance of domains and indicators through qualitative research. Like the WAGE score, the SWPER methodology limited the analysis to women who were currently partnered. The three domains captured by the SWPER were attitudes towards violence, social independence, and decision making (Ewerling, et al., 2017), and did not measure lifetime experience of violence, health-related empowerment or sexual and reproductive health. In the context of Peru, and as highlighted above, attitudes against violence do not align with lifetime experience of violence; therefore, the inclusion of one set of indicators or domain without the other would

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<sup>21</sup> The SWPER was recently published in September 2017. I have only been able to locate three publicly-available publications that detail the SWPER methodology. In these, no clear conceptual development of the women's empowerment and gender equality aspects of the index were present.

lead to an imbalanced picture. Despite this, the SWPER has been an attempt at measuring certain gendered or empowerment indicators at the individual level using existing DHS data that is closely-aligned to the WAGE methodology. Although there are some conceptual and data limitations, the SWPER has been argued to be a tool to “...help advance the study of gender empowerment [sic], unless one chooses to argue for perfection over progress” (Raj, 2017).

## 7.3 Contribution to Knowledge

### 7.3.1 Contribution to the field of Gender Metrics

There is a larger debate at hand about the proliferation of global health metrics and whether these metrics adequately capture local experiences. Whilst accepting the premise of and need for metrics in global health and development, this thesis has critiqued existing gender index strategies, identified gaps in current methods, and attempted to address some of the shortfalls of index construction, notably the divide between the local and universal contexts. My attempt at measuring women's achievements and gender equality is situated in the current landscape of global health, where there is an increasing "...push for and reliance upon specific kinds of quantitative metrics that make use of evidence-based statistical measures, experimental research platforms, and cost-effectiveness rubrics for even the most intractable health problems and most promising interventions" (Adams, 2016, p. 1), such that only 'what gets measured gets done.' Or, possibly, what doesn't get measured, gets ignored or erased. Whilst metrics assume a position of being indelibly factual and apolitical, the opposite is often the case (ibid.) . Metrics are highly dependent on what is counted, how it is counted, and how these measures are combined to reflect the actual phenomenon being measured. As Adams and colleagues note, reliable numbers that truly represent lived experiences are difficult to get, and through the process of measurement, there is a loss of granularity such that local experiences get washed out, or, worse, ignored (ibid.). As such, the WAGE methodology has been shaped to recognise the limitations of quantifying women's achievements and gender equality whilst balancing this with qualitative insights.

Ideally, a gender index should identify the extent of inequality, identify the causes of this, guide policies or interventions to improve on the current situation, and monitor the impact of these policies or interventions over time (Dijkstra & Hanmer, 2000). The WAGE score attempted to do this over both women's achievement and gender equality. Through the WAGE Score, the extent of under-achievement or inequality is established at the individual level through comparing the gap between

the actual and optimal level of achievement or equality. By benchmarking against an optimal outcome of achievement and equality, the distance from the ‘ideal’ scenario was established. The WAGE Score components were aggregated horizontally, meaning that the extent of underachievement and inequality was first quantified at the level of the individual before aggregating at a group level. By defining indicators and domains by the WA and GE Scores before combining them into an overall WAGE Score, I was able to identify the drivers of the domains and WA and GE scores. This also allowed me to analyse the underlying causes of these, such as the strong influence of socioeconomic development on selected women’s achievements. Although it was not fully developed in this thesis, the policy implications of gender measures have generally been understood in terms of how they can establish a benchmarking standard and be compared across contexts or between groups (Barden & Klasen, 1999; Dijkstra & Hanmer, 2000; Hawken & Munck, 2013). The ability to aggregate the WAGE over various levels and categories of identity means that it provides tailored and adaptable information about women’s achievements and gender equality, and therefore – like other measures of socioeconomic development – may be a powerful tool to call attention to governments when allocating funds or establishing policy priorities (GALLARDO, 2009).

The shape of women’s achievements and gender equality in relation to levels of economic development has been investigated with macroeconomic models at a national level (Eastin & Prakash, 2013; Katseli, 2007; World Economic Forum, 2016). An investigation into this type of relationship utilising an individual-level score over cross-sectional levels of socioeconomic status *within a country* has not previously been done. The WAGE Score facilitates this analysis through individual-level information on women’s achievements and gender equality derived from ENDES 2015. By deconstructing the average WA, GE and WAGE scores by rural/urban location, ethnicity and wealth, I found that there was a stepwise decrease in the scores, signifying an improvement in the indicators as socioeconomic status improves. The gradient of WA score over categories of wealth was more pronounced than the GE score, indicating a stronger association between wealth and women’s achievement. This is consistent with international trends that show association between indicators of women’s socioeconomic *achievements* linked to

national economic development (World Economic Forum, 2016) but no such association between gender equality in *social institutions* and per capital income (Katseli, 2007),

Critiques of gender indexes have noted that certain approaches designed to measure inequality are blind to overall levels of achievement or development, lacking the capacity to discriminate between equality as a result of *equally poor achievements* and equality as a result of *equally strong achievements*. This difference, however, is an important distinction to make: an individual who has a small equality gap because *neither* she nor her partner have education is most likely a very different person to an individual who has a small equality gap because *both* she and her partner have education. The WAGE Score, through its construction methodology, has attempted to overcome this by first quantifying women's achievement, and subsequently assessing gender equality in relation to the individual woman.

My analysis demonstrates that women's achievements and gender equality are *inter-related* but not the *same* construct. This has important implications for the construction of gender indexes, where terms such as *women's empowerment* and *gender equality* are conflated (see Chapter 2, and take, for example, the working contained in SDG 5). Without a clear framework linking the conceptual basis with measurable indicators, important information about these distinct areas of *women's achievements* and *gender equality* may be lost. This also has important implications for mainstream development discourses that position economic development as a means to overcome gender inequality, and, conversely, gender equality as a 'tool' for economic development (World Economic Forum, 2016). As discussed in Chapter 6, the WAGE Score results demonstrate that in Peru, improving indicators of socioeconomic wellbeing are associated with improving women's achievements but not as strongly associated with indicators of gender equality.



### 7.3.2 Contribution to understanding gender inequalities in Peru

In Chapter 6, I presented the WA, GE, and WAGE scores by geopolitical region, rural/urban location, ethnicity and quintiles of wealth in Peru. My findings confirm that Peruvian women experience underachievement (quantified by the WA score) and gender inequality (quantified by the GE score) differently and to a differing degree depending on their background. Situating the WAGE Score results in an historical analysis of Peru enabled a deeper understanding of the situation of women's achievement and gender equality in Peru (Section 7.2.1 above). Given the entrenched social inequalities in Peru (Boesten, 2010; Ewig, 2010), it is, perhaps, not surprising that the WAGE score demonstrated distinct differences in women's achievement and gender equality over categories of wealth, ethnicity and geography.

Beyond a simple break-down of the WA, GE and WAGE scores over the above social categories, I started to explore the impact of layered social disadvantage on achievement and equality through the presentation and discussion of hypothetical individual scenarios based on my qualitative fieldwork and observations. I found that if a woman was simultaneously from a poor, rural and Indigenous background in Peru, she fared the worst in terms of under-achievement and inequality. Those who perform the best appear to be women who are wealthier, urban-dwelling, and not Indigenous. This was consistent with my qualitative observations, where I observed stark inequalities in women's achievements between the LNR and Iquitos, driven by layers of social disadvantage and often internalised as a sense of 'feeling less than' in interview participants themselves. In the broader Peruvian literature, Ames (2013) reports a distinct urban/rural division in educational parity and economic empowerment, further compounded by issues of poverty, Indigenous status and rural geography. In reproductive health, social and gender inequalities have been shown to intersect to the drive risk of STI/HIV transmission, where poverty pushes many to transactional and commercial sex work in resource-poor, rural Peruvian areas (Orellana, 2013). Espinoza (2009) identified how ethnic difference and gender subordination influenced women's healthcare interactions, where – on the one hand – women were marginalised by local health traditions and

taboos, and – on the other – they were expected to sustain their family and children's health through regular contact with the western healthcare system.

Gender inequalities – reflected in partner dynamics which were captured in qualitative interviews – did not seem to be as dependent on social class or other layers of social advantage or disadvantage. I observed both strong and weak examples of between-partner equality regardless of the individual participant background. Gender inequality was more diffusely prevalent and difficult to budge compared to women's achievement which seemed malleable through the forces of socioeconomic development. This speaks to the entrenched gender inequalities over all social strata in Peru, and points to the need to target ways in which the cycle of authoritarian forms of patriarchy are transmitted inter-generationally through the family unit, regardless of one's social background (Boesten, 2010).

Further, a challenge I encountered when measuring women's achievements and gender equality at the individual level was the distinct divide between attitudes expressed towards gender equality and reality of lived experiences of gender inequality. Recent opinion-based surveys suggest that the majority of Peruvians support gender equality in education, employment, and political representation (UNESCO, 2012). As recognised in Chapter 3, there were clear contrasts between attitudes expressed in the aforementioned survey and the reality of national indicators. Likewise, in my research, I encountered a similar division between attitudes and reality: most men and women interviewed supported gender equality yet the majority were aware of stark prevailing inequalities.

### 7.3.3 Mixed Methods Research

Given the complexity of women's achievements and gender equality, it was necessary to draw on a range of academic disciplines to ensure a comprehensive approach to index construction. Qualitative research and thematic analysis identified gender domains, and aided the selection appropriate ENDES indicators. Cognitive interviews facilitated the evaluation of the validity of indicators and domains. These techniques led into the quantitative section of the thesis, which explored the index construction through exploratory and confirmatory factor

analysis. I used the large ENDES 2015 dataset, which was a household survey that contained information on individual women and their partners. This mixed-methods approach is in contrast to some previous attempts at gender index construction, which have extracted and processed indicators without a considered qualitative evaluation. Indexes such as the WEAI, as mentioned above, have taken a qualitative approach to the understanding of local gender and women's empowerment dynamics, too. These qualitative or mixed-methods approaches also have their limitations, which were discussed in Section 7.2.3 above.

Beyond the scope of women's achievements and gender equality, the mixed-methods research approach I chose to take in this thesis aligns with a number of contemporary approaches to multidimensional index construction for indexes of wellbeing. For example, Greco used a capabilities framework to better understand quality of life, and utilised qualitative research to validate the indicators contained in the index (Greco, 2013). In the context of a maternal and child health trial, Gram developed a measure of women's agency that was both derived from and validated through in-depth qualitative interviews (Gram, et al., 2017). In a review of qualitative approaches to defining and understanding wellbeing, Camfield and colleagues support the essential role of qualitative research in understanding people's experiences of wellbeing, but recognise the larger burden of time, energy and sensitivity required (Camfield, et al., 2009). Ultimately, however, the combination of both qualitative and quantitative approaches to index construction facilitates a depth and breadth of explanatory power that single methods used in isolation do not (ibid.) . Although it does not take a fully emic approach, the WAGE score methodology uses qualitative research to temper the decisions on indicators and domains shaped by international norms and quantitative analysis, and, by doing so, overcomes any biased top-down assumptions made through the process of building the index.

Qualitative or mixed methods research allows a way to critique the construction of indexes and put a check and balance on any top down assumptions made throughout the index construction process. Although a mixed-methodology approach does not fully overcome the limitations discussed above, the inclusion (and privileging) of qualitative research to temper the quantitative process was a

way to both deepen and strengthen the measurement of women's achievement and gender equality. Whilst I was able to incorporate mixed methods insights into the WAGE score during the course of my doctoral studies, the question remains as to if, when, and how qualitative measures can be included in metric development more broadly.

## 7.4 Limitations of Research

*What can be made of the stories—the empirical events, experiences, and myriad occurrences and facts—that do not lend themselves to being counted, or at least not counted without an epistemological violence being done to the complicated empirical truths they offer? What are we to do with empirical truths about particularities and interwoven strands of cause and effect, of rationality, that seem always beyond the pale of reductive forms of counting—the things that spill over and can't be included in the counting exercises? (Adams, 2016, p. 7)*

This thesis identified a number of limitations in extant multidimensional gender indexes, including challenges to conceptual clarity, biased indicator selection, lack of consensus on indicator aggregation and index construction, and the use of aggregate information that was blind to within-country inequalities. I attempted to systematically address these throughout the body of the thesis. However, I encountered a number of additional challenges which limited the research. Here, I will discuss conceptual, methodological and practical limitations.

There are additional well-recognised challenges to the conceptualisation of gender equality and the translation of gendered constructs into measurable terms. These include measuring at the individual or group levels, relying on subjective versus objective assessments, and the tension between universalist or context-specific measures. The level of measurement presents a challenge when deciding on how women's achievement and gender equality look and how they may be measured. For example, current aggregate scores report proportions or ratios as a general method to quantify the differences between women and men. This does not capture individual experiences but merely generalises to the population. However, when the unit of analysis is the individual, against whom can you compare? I chose to compare an individual's achievements against her partner as well as to use indicators such as decision-making that reflected processes between partners. This limits the analysis a) through the reduction of the experience of gender inequality to being simply between an individual woman and her male partner (and not capturing to a full extent the scope of indirect and societal inequalities that

individuals experience as per the socioecological model, and b) limiting the analysis to partnered women and thus introducing a bias in the measure itself. Choosing to measure women's achievements and gender equality at the individual level also impacts what measures are, in fact, measurable. For example, political representation and community empowerment measures were not included in the WAGE Score because there were no available measures in ENDES, but are important aspects of achievement and empowerment. Alkire and colleagues (Alkire, et al., 2013) address this through the inclusion of a women's leadership domain that assesses if an individual is part of a group or is able to speak in public; this may be a way to shape these questions to the individual level and thus may be an area for inclusion in ENDES in the future. An additional tension arose between universalist and context-specific purposes of indicators. To overcome this challenge, Malhotra and colleagues suggest the use of a generalisable and comparable framework that draws on internationally-relevant conventions, but which is not too prescriptive so that there is scope for enhancing the index with more context-specific information (Malhotra, et al., 2002). This does not negate the need for localised research which contextualises the nature of gender achievements or inequities; instead, it reinforces it. There is an overwhelming consensus of the importance of understanding the social, cultural and political context to develop a meaningful understanding of the role of gender in development (Malhotra, et al., 2002; Nussbaum, 2000).

Data limitations in the ENDES presented a challenge to the operationalisation of certain women's achievement and gender equality domains, such as *domestic sphere*, *community participation* and *leadership*. Despite the identification of certain domains of importance derived from the international literature and emerging through thematic qualitative research, these were not always matched with data availability. Ultimately, the selection of indicators was limited to ENDES household survey data availability. This meant that the indicators were biased towards a) women of reproductive age, and b) the type of information determined by the Demographic and Health survey programme and adopted by the Peruvian ENDES. Given the history of the DHS, originally designed as an update to the World Fertility Survey, its indicators have been heavily focused on reproductive health, fertility, family planning and nutrition (Corsi, et al., 2012). The inclusion of gender,

development and women's empowerment indicators have mainly involved expert opinion of a few centralised professionals, based on a review of the available literature (Kishor, 2015). However, these indicators tend to be biased towards public-facing indicators reflecting only a small aspect of equality or empowerment (see Chapter 4).

I also encountered limitations to the assessment of the validity and reliability of indicators and domains. It is recognised the validity of a measurement tool cannot be adequately assessed with one method alone; many approaches to the evaluation of multidimensional measures use a mixed methods approach (Batura, et al., 2016; Gram, et al., 2017; Johnson, et al., 2007; Morrison, et al., 2015). To evaluate the construct validity, I reflected on the available literature detailed in the literature review (Chapter 2), and interviews and focus group discussions detailed in Chapter 3. I assessed content validity by through cognitive interviews, a technique to identify and correct problems with survey questions and to understand the deeper internal process around a survey respondent's answer (Willis, 1999). Despite identifying key challenges and areas for further development, the cognitive interview process was limited in certain ways, through language barriers, limited conceptual discussions, and time or environmental factors. Furthermore, because there is no agreed gold standard of the individualised measurement of gender achievement or equality, I was not able to test for criterion validity. Therefore, the overall assessment of the validity was limited.

#### 7.4.1 The missing pieces of the puzzle: what is missing from current international data and how can we derive this information?

As mentioned above, the construction of the WAGE Score was ultimately constrained by the data contained within the ENDES 2015 dataset. Indexes can only ever be as good as the available data. To overcome this issue going forwards requires a clear articulation of the areas of discrepancy between conceptual areas and measurable data, identifying necessary data that is currently missing, and a

clear message for how missing areas of data can be incorporated into and collected by future ENDES or DHS surveys.

The areas of discrepancy between desirable and available data were first identified in Chapter 4. Questions on home and land ownership were not sufficiently discriminatory, yet asset ownership has recognised as an important aspect of achievement and equality internationally. There was a scarcity of available information on domestic duties and a relatively higher number of public-facing indicators of economic achievements in the current ENDES dataset. There was also no capacity with the current array of indicators to evaluate community participation or leadership opportunities at the individual level. Therefore, the key areas missing from the 2015 ENDES that are necessary for a more complete picture of women's achievements and gender equality are: asset ownership and agency over these assets, domestic duties and time use, and community participation and leadership.

In terms of asset ownership, at present most data derived from nationally-representative surveys are collected at the level of the household and not at the individual level. Whilst household-level information may reflect overall socioeconomic status and some conferred benefits, within the same household women and men do not necessarily have the same assets and may "...acquire, use and dispose of assets differently" (United Nations Statistics Division, 2017). Therefore, individual measures of asset ownership and control reveal more about women's achievements, empowerment, vulnerability and livelihood strategies (United Nations Statistics Division, 2017). The pilot Evidence and Data for Gender Equality project recently published guidelines on individual-level data on asset ownership, suggesting that information should be collected on reported ownership, documented ownership, economic ownership, and rights over the asset (ibid.). These questions can readily be adapted and included in future DHS and ENDES surveys.

Domestic labour, whilst recognised by feminist scholars as an important aspect of gender equality, has rarely been included in international measures of gender equality. There are limited questions on domestic roles contained in the ENDES and



DHS more broadly. As such, domestic roles are invisible in international measures of gender equality and current household datasets, and the WAGE Score is significantly limited by this. This does not necessarily have to be the case: at an aggregate level, data can and have been utilised to explore gender equality in the domestic sphere, including the availability of parental leave allowances and access to childcare benefits (Månsdotter, et al., 2006). Time-use surveys have the capacity to reflect how “... gender roles attributed to women and men, girls and boys, shape the division of labour within a household” (Ferrant, 2014). By quantifying in greater nuance the balance of public and private roles, time use analyses make traditionally invisible labour more visible, explains gender gaps in employment, highlights the intergenerational transmission of gender roles, and helps understand and reduce the gaps in time poverty (ibid.). Currently, over 70 countries worldwide have conducted at least one time use survey; it is therefore feasible that time use data can and should be included in future DHS and ENDES surveys.

ENDES and the broader DHS survey programme also do not quantify community participation and leadership. However, this emerged from the qualitative research as an important area of both individual and collective achievement and equality. Although traditionally conceptualised as group-level indicators, it is possible to conceptualise and measure these at an individual level, too. Political involvement extends much deeper than measuring representatives or figureheads; Putnam (1995) argues that civic engagement is term to capture the importance of individual and collective social capital within a democratic society, and can be measured through anything from reading newspapers to social networks. The typology introduced by Hekman and Amnå explores political participation from the perspective of the individual, and establishes both latent political participation (attention, involvement and civic engagement) and manifest political participation (formal participation and activism) (Hekman & Amna, 2012). These are concepts that emerged from the qualitative interviews as being measurable and relevant. For example, evidence emerged from my interviews that women and men fulfil certain roles of leadership in their community, belong to formal and informal community groups, and have certain opinions on the roles of women and men in politics. These can all feasibly be measured through individual questions. The WEAI,

as detailed above, has provided an example of how exactly this can be done at an individual level.

Finally, data from both men and women should be included to ensure a balanced assessment of gender roles and to avoid the trap of assuming that 'data on women' represents 'data on gender.' Although some DHS surveys do contain men's modules, the Peruvian ENDES 2015 did not. Furthermore, the questions contained in the men's modules differ from the women's modules (USAID, 2016) which means that data is not always comparable across genders and that gender bias may be present if the nature of questions directed towards women are not the same as towards men. The expansion hypothesis states that, by being active in only one sphere of life (often, this is the public economic sphere), men are worse off in terms of wellbeing than women (Härenstam, et al., 2001). As such, expansion of roles and activities into the private and family sphere may lead to greater wellbeing and change of social roles and behaviours (ibid.). This is another a compelling reason to ensure that measures over both the public and private domains are included equally for both men and women in surveys going forward.

In summary, the above evidence constitutes a call for action for the DHS and ENDES programmes to include indicators that reflect asset ownership, time use and domestic labour, community participation and leadership. Furthermore, these data should be available for both men and women for the purpose of measuring gender equality going forward.

## 7.5 Application and Next Steps

The challenges and limitations identified in Section 7.4 shape a future research agenda, where there is a need to simultaneously evolve the conceptual framework of gender and gender equality beyond a binary and limiting heteronormative discourse, whilst simultaneously ensuring existing data is gender-disaggregated, and developing indicators that capture the complexities of women's and men's lived experiences, especially in relation to the domestic sphere. The need to overcome the gender data gap has recently come into international focus through initiatives such as Data2x and Equal Measures 2030 (Equal Measures 2030, 2017; UN Foundation, 2017). For example, Data2x identifies 28 gaps across five domains, including health, education, economic opportunities, political participation, and human security (UN Foundation, 2017). These gaps were categorised by lack of coverage, lack of international standards, lack of complexity or lack of granularity (*ibid.*). Strategies to overcome these gaps include both better harnessing existing data and proposing ways to collect additional necessary indicators (*ibid.*). Further tactics to refine this process could include participatory research techniques, consensus-building strategies involving research participants, academics and policy-makers, and embedding qualitative research into the process of survey design and data collection. The use of qualitative and mixed-methods approaches is discussed further below.

While the WAGE methodology was primarily designed to capture women's achievements and gender equality at an individual level and enable an analysis of within-country gender inequalities, it was also designed using available internationally available data. This means that it may be feasible to implement the WAGE score across different settings internationally. However, steps towards applying the WAGE methodology in additional or multiple countries highlights both the tension between universalist and context-specific measures, and the challenges of incorporating mixed methods and qualitative research into index construction.

The approach I took attempts to bridge the need for context-specific research with the push for universal indicators. To overcome this tension, Malhotra and colleagues suggest the use of a generalisable and comparable framework that

draws on internationally-relevant conventions, but which is not too prescriptive so that there is scope for enhancing the index with more context-specific information (Malhotra, et al., 2002). Through the process of index construction, I, too, was able to evaluate the international field of gender metrics (Chapter 2) whilst also considering local information (Chapters 3 and 4). If the WAGE was to be developed in another setting going forward, given the evolving field of gender metrics and potential for contextual differences, it would be advisable to repeat this strategy to ensure that the index adequately reflects local concerns whilst remaining universally relevant.

This thesis also attempts to integrate qualitative insights of local concepts of achievement and equality into the construction of an index. Using qualitative research provides a check and balance against data-driven or normative approaches to index construction which have previously dominated the field. Furthermore, qualitative research was a way to guide the best use of the available ENDES data and to identify data gaps in ENDES that can be improved upon in future surveys. However, qualitative research is recognised as being time-intensive and costly, and the findings may not be generalisable. So, consideration must be given as to the level and extent of involvement of qualitative research in the overall process. To advance the conceptualisation of women's achievements and gender equality in different contexts, qualitative research is necessary. This has been recognised by the Gates Foundation and others, as part of a push for improved gender data collection (The Bill and Melinda Gates Foundation, 2016). Ultimately, however, the WAGE score was limited by the available data in the ENDES survey. So, taking this as a starting point, an effective use of qualitative research in this approach would be to begin with available data and use techniques such as cognitive interviewing to ensure the indicators are best used. The cognitive interview process could be refined to capture both understanding of the question and preferences for certain indicators as a way to set priorities for the importance of the indicator. I found that the cognitive interviews I performed also allowed time and space to discuss constructs of women's achievement and gender equality sufficiently, and to identify divergent or unique opinions.

To explore the replicability and generalisability of the WAGE score, the methodology could be tested in different contexts internationally. Furthermore, there is also a need to expand the evaluation of the WAGE Score through extended validity analyses or reliability analyses such as a test-retest approach with a new round of ENDES data. Although these research options were out of the scope of my thesis, they establish a clear future research agenda.

Finally, the tools provided by international gender indexes may also be used by various groups to advocate for gender equality or by policy-makers to monitor the impact of policies and programmes. The impact of these tools is currently limited to the international arena, due to the use of national-level aggregate data. The WAGE Score overcomes this to a certain degree by providing an alternative way of measuring women's achievement and gender equality at the individual level, allowing sub-national analyses. Although this research was specific to Peru, the methodology and findings of the WAGE score may be applicable to various different contexts worldwide.

#### 7.5.1 Policy implications

Gender itself is an inherently political issue that "...is missing from, misunderstood in, and only sometimes mainstreamed into global health policies and programmes" (Hawkes & Buse, 2013, p. 1783). Furthermore, "...specific interests perpetuate gender norms and, hence, ... explicit strategies are needed to address these interests" (Hawkes & Buse, 2013, p. 1786). The quantification of gender equality through indexes such as the WAGE enables greater evidence-based arguments for policy and action.

The WAGE score was designed specifically to overcome some of the challenges to gender metrics identified, and, in particular, to ensure it provides nuanced and targeted information about gender inequality at a sub-national level. This means it has the potential not only to identify areas of inequality and postulate on their causes, but also to guide policy and monitor the impact of policy on gender inequality over time, a key application of gender metrics (Dijkstra & Hanmer, 2000).

The policy relevance of international indexes has generally been understood in terms of how it can establish a national performance standard, and compare this internationally. Well-established measures such as the Human Development Index (HDI) have reportedly been used as tools “...calling the attention of central government when allocating public investment funds, aid funds coming from international cooperation or funds destined to alleviate poverty” (GALLARDO, 2009). The UNDP argues that the policy relevance of the HDI is that it stimulated national and international attention to human development, including the collection of data and the relationship between human development and growth (UNDP, 1995). In the field of gender metrics, there is an implicit assumption that publication of internationally-comparable results will serve as a mechanism to pressure governments for change. However, the role of a gender index remains rather flexible and passive, and little literature explicitly addresses the policy implications of the measures themselves (see Chapter 2).

Finally, gender data is a political issue. Although there have been recent pushes to increase the profile of gender data and improved scope of gender indicators, this will need to be matched by political will and policy directives. At the most basic level, sex-disaggregated data is a necessary tool for basic planning and response in global health and beyond (Global Health 5050, 2018). Beyond this, there is a need to embed gendered thinking into government surveillance and data systems, institutions, and, beyond mainstreaming gender, mainstream the acceptance of gender data as a critical health and development strategy (*ibid.*).

## 7.5 Summary and Conclusion

In summary, the WAGE Score was developed to facilitate a more nuanced exploration of gender achievement and equality at a sub-national level. Through re-conceptualising the measurement of gender achievement and inequality to the individual level, the information derived from the score is disaggregated and thus can provide a more granular assessment of gender equality in Peru.

The WAGE score has been designed specifically to overcome some of the challenges to gender metrics identified, and, in particular, to ensure it provides nuanced and targeted information about gender inequality at a sub-national level. However, it still encountered certain limitations conceptually, in relation to data availability, and in the validation of indicators and domains.

This thesis contributes to the evolving field of gender metrics by offering an alternative to national-level aggregate gender equality scores. Furthermore, it theorises how existing data sources may be best used in the construction of a gender index, rather than collecting new information locally. The WAGE score has been designed specifically to overcome some of the challenges to gender metrics identified, and, in particular, to provide nuanced and targeted information about gender inequality at a sub-national level in Peru. This means it has the potential not only to identify areas of inequality and postulate on their causes, but also to guide policy and monitor the impact of policy on gender inequality over time. There is a large scope for further developments in the area of individualised gender equality scores. The WAGE Score methodology provides a starting point from which to improve upon international gender indexes both conceptually and practically.





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# APPENDIX A: Qualitative research guides

## A.1 Individual participant interview guide

### **1. Understanding of concept of gender equality**

Comprensión del concepto de igualdad de género

**Do you think women have a good life here? Why?**

*¿Crees que las mujeres tienen una buena vida en su pueblo? ¿Por qué?*

**Do you like being a woman here? Why?**

*¿Te gusta ser una mujer? ¿Por qué?*

**Do women face more problems than men here? Why?**

*¿Las mujeres se enfrentan más problemas que los hombres aquí? ¿Por qué?*

**What specific problems?**

*¿Qué problemas específicos?*

**Is there anything you can do for these problems?**

*¿Hay algo que pueda hacer para enfrentarse (que puede superar) estos problemas?*

**Is there anything that has helped these problems?**

*¿Hay algo que ha ayudado estos problemas?*

**Do you think the problems are getting better, worse or staying the same? Why?**

*¿Cree que este tipo de problemas ha ido a mejor, peor o igual? ¿Por qué?*

**In women who experience these problems, do they also have problems with their health? Why?**

*Las mujeres que experimentan estos problemas, ¿también tienen problemas con su salud? ¿Por qué?*

**Do you think there is a connection between gender inequity and women's health? What do you think influences women's health?**

*¿Crees que hay una conexión entre la desigualdad de género y la salud de las mujeres? ¿Qué crees que influye en la salud de las mujeres?*

**What problems have you faced to get access to healthcare? Are there issues with discrimination, or is there unequal healthcare in your community?**

*¿Qué problemas se ha enfrentado para acceder a atención médica? ¿Hay problemas de discriminación, o hay servicios de salud desigual en su comunidad?*

**Have you or someone you know been beaten at home? Do you think this is ok?**

*¿Alguien que usted conoce lo han golpeado en su casa? ¿Cree que esto es aceptable?*

### **2. Exploration of influencing factors**

Exploración de factores que influyen

**Are women's positions influenced by local programmes or local knowledge?**

*¿Las posiciones de las mujeres están influenciadas por programas locales o el conocimiento local?*

**Do you hear about women's issues through the [local media]?**

*¿Escucha algo acerca de los asuntos de la mujer a través de los [medios de comunicación locales]?*

**Does being poor or rich, old or young, or from a certain village/birth place make any difference?**

*¿Ser pobre o rico, viejo o joven o ser de un lugar determinado hace alguna diferencia?*

**Do you think women in [Iquitos or the Amazon] have different or better lives? How?**

*¿Cree que las mujeres de [Iquitos o el Amazonas] tienen vidas diferentes o mejores? ¿Cómo?*

**Do you think that the government is doing enough for you and other women?**

*¿Cree que el gobierno está haciendo suficiente por ti y por otras mujeres?*

**Do you know of any local programmes that are helping women?**

*¿Sabe de algún programa local que esté ayudando a las mujeres?*

**Have you heard about human rights? Do you think these human rights apply to you?**

*¿Conoces los derechos humanos? ¿Crees que estos derechos humanos se aplican a usted?*

### **3. Questions about gender and health**

#### **Preguntas sobre genero y salud**

**Do you think there is a connection between gender inequity and women's health?**

*¿Crees que hay una conexión entre la desigualdad de género y la salud de las mujeres?*

**What do you think influences women's health?**

*¿Qué crees que influye la salud de las mujeres?*

**What are the major women's health issues in your community?**

*En su comunidad, ¿como son los problemas en salud de las mujeres?*

### **4. Questions around gender empowerment and intra-household inequality**

#### **Preguntas sobre empoderamiento y el desigualdad al dentro de la casa**

**In your household, who is best educated? Your husband or yourself?**

*En su hogar, ¿quién es el más educado? Su esposo o usted?*

**Between you and your husband, do you think that differences in your education matter to you?**

*Entre usted y su marido/pareja, ¿crees que las diferencias en su educación son importantes para usted?*

**In your household, who has better employment? Your husband or yourself?**

*En su hogar, ¿quién tiene un mejor empleo? Su esposo o usted mismo?*

**Between you and your husband, do you think that differences in your employment matter to you?**

*Entre usted y su marido/pareja, ¿crees que las diferencias en el empleo son importantes para usted?*

**Are there any local female community leaders or politicians? How many?**

*¿Hay mujeres que sean políticos o líderes de la comunidad? ¿Cuántas personas?*

**For women in your community, do you think that having either a male or female mayor is important?**

*Para las mujeres en su comunidad, ¿crees que el tener un alcalde (hombre) o alcaldesa (mujer) es importante? What would be different if you had a female mayor?*

*¿Qué sería diferente si hay una alcaldesa?*

**In your household, who decides to spend the money?**

*En su hogar, ¿quién decide gastar el dinero?*

**Does who decides to spend money matter to you? Does your health or wellbeing suffer because of this?**

*¿Es importante? ¿El que decide gastar dinero se importa a usted? ¿La salud de usted sufre a causa de esto?*

**What else is a matter of concern or inequality between men and women in your community?**

*Lo demás es una cuestión de interés en la desigualdad entre hombres y mujeres en su comunidad?*

**Do you think measuring gender equity through surveys would be a good thing for women like you in your community?**

*¿Cree usted que la medición de la equidad de género a través de encuestas que sería una buena cosa para las mujeres como usted en su comunidad?*

**What questions about gender equality would you like to see in this survey?**

*¿Qué preguntas sobre la igualdad de género te gustaría ver en esta encuesta?*

**What haven't I asked you about that is important to know?**

*¿Hay algo importante sobre lo que no le he preguntado? / ¿Se le ocurre alguna otra cosa importante que le pueda preguntar?*

## **A.2 Service provider interview guide**

### **1. Service provider roles**

#### **Los roles de proveedor de servicio**

**How long have you been working in your current role**

*¿Para cuánto tiempo ha estado trabajando en su rol?*

**How did you come to work in this role?**

*¿Cómo llegaste a trabajar en este rol?*

**What does your work entail?**

*¿En qué consiste su trabajo?*

### **2. Understanding of concept of gender equity**

#### **Comprensión del concepto de igualdad de género**

**Do you think women have a good life in your community? Why?**

*¿Cree que las mujeres tienen una buena vida en su comunidad? ¿Por qué?*

**Do women face more problems than men there? Why?**

*¿Las mujeres se enfrentan más problemas que los hombres? ¿Por qué?*

**What specific problems do women face?**

*¿Qué problemas específicos afrontan las mujeres?*

**Have you heard about gender equality?**

*¿Ha oído hablar de la igualdad de género?*

**How would you describe gender equality?**

*¿Cómo describiría la igualdad de género?*

**Does gender inequality exist here?**

*¿existe la desigualdad de género, aquí?*

**Why? What factors drive gender inequality? For example, culture, geography, laws, policy, resources, human rights, poverty, other?**

*¿Por qué? ¿Qué factores conducen a la desigualdad de género? Por ejemplo, cultura, geografía, leyes, política, recursos, derechos humanos, la pobreza, ¿otros?*

### **3. Questions around gender and health**

#### **Preguntas sobre género y salud**

**Do you think there is a connection between gender inequity and women's health?**

*¿Crees que hay una conexión entre la desigualdad de género y la salud de las mujeres?*

**What do you think influences women's health?**

*¿Qué crees que influye en la salud de las mujeres?*

**What are the major women's health issues in your communities?**

*En su comunidad, ¿cómo/que son los problemas en salud de las mujeres?*

### **4. Questions around gender empowerment and gender**

#### **Preguntas sobre empoderamiento y el género**

**For women in your community, do you think having equal education with their husband is important? Why?**

*Para las mujeres en su comunidad, ¿crees que tener la educación igual con su marido es importante? Por qué?*

**For women in your community, do you think having equal employment with their husband is important?**



*Para las mujeres en su comunidad, ¿crees que tener el empleo igual con su marido es importante? Por que?*

**For women in your community, do you think that having either a male or female mayor is important?**

*Para las mujeres en su comunidad, ¿crees que el tener un alcalde (hombre) o alcaldesa (mujer) es importante? Por que?*

**What would be different if you had a female mayor?**

*¿Qué sería diferente si hay una alcaldesa (mujer)?*

**In a household, who normally decides how to spend the money? Women or men?**

*En una casa/hogar , quien normalmente decide cómo gastar el dinero? Las mujeres o los hombres?*

**Does who decides to spend the money cause problems at home?**

*¿Hay problemas cuando decidir quien gastará el dinero?*

**Does women's health or wellbeing suffer because of this?**

*¿La salud de las mujeres sufren a causa de esto?*

**Do you think measuring gender equality through surveys would be a good thing for your community?**

*¿Cree usted que la medición de la igualdad de género a través de encuestas que sería una buena cosa para su comunidad?*

**If we made a survey for gender equality and health,**

*si desarrollamos un estudio sobre la igualdad de género y salud,*

**what questions about gender equality would you like to see in this survey?**

*¿Qué preguntas sobre la igualdad de género te gustaría ver en esta encuesta?*

**what questions about women's health would you like to see in this survey?**

*¿Qué preguntas sobre la salud de mujeres te gustaría ver en esta encuesta?*

**What questions about gender equality would you like to see in this survey?**

*¿Qué preguntas sobre la igualdad de género te gustaría ver en esta encuesta?*

**What haven't I asked you about that is important to know?**

*¿Hay algo importante sobre lo que no le he preguntado? / ¿Se le ocurre alguna otra cosa importante que le pueda preguntar?*

## APPENDIX B: Participant and Service Provider Information and Consent (Spanish)

### Consentimiento Informado para Entrevistas (Participantes y Actores Claves)

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Instituciones:	DB Peru University College London (Londres, Reino Unido) Universidad Peruana Cayetano Heredia (Lima, Perú)
Investigadores:	Geordan Shannon, Diana Bowie, Nora Groce, Carlos Cáceres

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Le invitamos a participar del estudio. Antes de decidir, permítame explicarle en que consiste este estudio y cómo puede ayudar. Voy a ir a través de toda la información y responder a cualquier pregunta que usted tenga. Hable con otras personas acerca del estudio si lo desea. Por favor, pregunte si hay algo que no está claro.

#### ¿Por qué la investigación?

Nuestra investigación pretende comprender cómo personas como usted se sienten acerca de su papel en su comunidad, y cómo esto puede afectar su salud. Esta información nos ayudará a hacer recomendaciones para mejorar los programas para mejorar la salud.

#### ¿Quién está llevando a cabo la investigación?

DB Peru esta llevando a cabo el estudio. Geordan Shannon es la líder del proyecto en colaboración con la Universidad Peruana Cayetano Heredia en el Perú y la Universidad College de Londres, Reino Unido.

#### ¿Qué tengo que hacer si decido participar?

Le invitamos a participar en una entrevista con un(a) investigador(a). Durante la entrevista, el/la investigador(a) va a hablar con usted acerca de sus experiencias de vida en su comunidad. Ellos harán preguntas sobre su familia, casa, trabajo, y la comunidad, así como su salud. Durante la entrevista, no dude en compartir experiencias o ideas que le parezcan importantes, pero no he preguntado directamente sobre ellos. Si en algún momento de la entrevista se siente incómodo, díglele al/la investigador(a) y cambiará de tema. La entrevista durará aproximadamente una hora. Con su permiso, el/la investigador(a) va a tomar notas. Las notas sera protegida y se guardará en un lugar seguro, accesible sólo a la ubicación del/de la investigador(a).

### **¿El estudio es confidencial?**

Sí. La información que nos proporcione será confidencial y sólo los/las investigadores(as) tendrán acceso a la misma. La información que proporcione no se conectará con su nombre o con sus datos personales.

### **¿Cuáles son los posibles riesgos y beneficios de participar en el estudio?**

Durante la entrevista, el/la investigador(a) le hará preguntas acerca de sus experiencias. A veces, hablando sobre experiencias o han experimentado problemas pueden causar recuerdos difíciles o dolorosas. Usted no está obligado a hablar de cosas que usted preferiría no discutir. Si decide participar y luego cambia de opinión, usted es libre de terminar la entrevista en cualquier momento y sin dar ninguna explicación. El/la investigador(a) le dará una lista de los servicios de salud y las organizaciones que pueden ser capaces de ayudar.

### **¿Me pagarán por mi participación?**

No hay compensación directa por su participación en el estudio. Sin embargo, la información proporcionada por usted nos ayudará a hacer recomendaciones para mejorar los servicios de salud en su comunidad.

### **¿Estoy obligado a participar?**

No. Su participación en este estudio es completamente voluntaria. Su decisión de participar o no, de ninguna manera afecta a los servicios que reciba en el futuro.

### **Otra información que usted necesita saber**

El estudio forma parte del proyecto de salud de DB Peru. También, lo forma parte del proyecto de tesis doctoral de Geordan Shannon en la Universidad College de Londres. Le daremos una copia de esta hoja de información, para celebrar. Este estudio cuenta con la aprobación del Comité de Ética de la Universidad Peruana Cayetano Heredia (Perú) y la Universidad College de Londres.

### **¿A quién puedo contactar si tengo alguna pregunta sobre este estudio?**

Si usted tiene alguna pregunta o comentario acerca de la investigación o de sus derechos como participante antes o después de la entrevista, puede ponerse en contacto con:

Geordan Shannon [geordan.shannon.13@ucl.ac.uk](mailto:geordan.shannon.13@ucl.ac.uk)  
+44 (0)7472701770

Comité de Ética Institucional, UPCH: [duict@oficinas-upch.pe](mailto:duict@oficinas-upch.pe)  
319-0000 anexos 2271 -2542

Al participar en este estudio, no está renunciando a ningún derecho. Si tiene otras preguntas sobre sus derechos como participante en el estudio, puede comunicarse

con la Junta de Revisión Institucional de Ética de la Universidad Peruana Cayetano Heredia a cargo de la protección de las personas en los proyectos de investigación de la Universidad Peruana Cayetano Heredia y cuyo presidente es el Dr. Freddy Canchihuamán. Para cualquier comunicación que usted puede llamar al: (01) 319-0000 o escribir 2271 anexo a la siguiente dirección: Biblioteca Central tercero. Piso, Av. Honorio Delgado 430, San Martín de Porres, Lima 31, Lima.

Se le ha dado una copia de este consentimiento.

***Muchas gracias por tomarse el tiempo para reflexionar sobre esta información.***

#### **CONSENTIMIENTO PARA SER PARTICIPANTE EN LA INVESTIGACIÓN**

- He leído (o alguien me ha leído) la información provista arriba.
- He tenido la oportunidad de hacer preguntas y todas mis preguntas han sido contestadas satisfactoriamente.
- Se me ha dado una copia de esta hoja de información y consentimiento.
- Estoy de acuerdo en participar en una entrevista que durará aproximadamente una hora.
- Entiendo que no tengo que hablar de cosas que prefiero no discutir. Soy libre de terminar la entrevista en cualquier momento sin dar ningún tipo de explicación.
- Entiendo que todo lo que diga es confidencial. Cuando los/las investigadores/as escriban sobre lo que he dicho, no usarán mi nombre.
- Entiendo que si durante la entrevista digo algo que indique que yo o un(a) niño/niña estamos en grave peligro inmediato, es probable que los/las investigadores/a necesiten contarlo a alguien que pueda ayudar. Si se da el caso, seré consultado(a) antes de compartir cualquier información.
- Estoy de acuerdo con el uso de citas de mi entrevista en los informes, artículos y publicaciones de este estudio. Entiendo que toda la información será anónima y que no se usarán nombres reales.

En los casos de grabación

- ¿Acepta que la entrevista sea grabada? Si ☐ No ☐

\_\_\_\_\_  
**Nombre/Apodo del Participante**

\_\_\_\_\_  
**Hora**

\_\_\_\_\_  
**Firma del Participante**

\_\_\_\_\_  
**Fecha**

\_\_\_\_\_  
**Firma del Testigo** (en caso de consentimiento verbal)

\_\_\_\_\_  
**Hora/Fecha**

#### **FIRMA DEL INVESTIGADOR**

- He explicado el estudio al participante y contestado todas sus preguntas.
- Creo que el (la) participante ha entendido toda la información descrita en este documento y el (ella) da su consentimiento libremente para participar en este estudio.

\_\_\_\_\_  
**Nombre del Investigador**

\_\_\_\_\_  
**Hora**

\_\_\_\_\_  
**Firma del Investigador**

\_\_\_\_\_  
**Fecha**

## APPENDIX C: Qualitative Interview Feedback

The feedback into future gender survey questions included insightful comments around the inclusion of questions about domestic violence, the role of the family and family dynamics, adolescent sexual relations and pregnancy, the role of women in domestic duties, educational opportunities, human rights realisation and women's own sense of self-empowerment and self-actualisation. Another very pertinent suggestion was to interview men around their own life achievements and sense of gender dynamics and equality. This feedback is consistent with current recommendations to transform male gender roles to ensure greater equity overall. From this feedback, the cognitive interview strategy detailed in Chapter 4 was developed to include men, women and couples. Whilst some of these survey suggestions are readily measurable (for example, lifetime prevalence of domestic violence), others refer to more nuanced and specific aspects of individual empowerment, attitudes, and opportunities.

Participant	Feedback
<b>QUESTIONS TO INCLUDE ON GENDER IN FUTURE SURVEYS</b>	
C, LNR	<i>Perhaps [use the survey] to discover if there's maltreatment, if there's family violence, because often always women appear calm for the sake of family togetherness, and do not speak up. They are always silent. It would be a good indicator also for power, if you want health, if you are developing health, the emotional part as well as [physical] health.</i>
C, Iquitos	<i>Well, I think that the person who is doing these surveys, I think that they will come to know more about our standard of living here, and see differences between men and women.</i>
T, Iquitos	<i>In a survey I would like to ask what more, what more can we refer to by these questions, these interviews you have done, what help or support more or less can we collect or have, I don't know.</i>
M, LNR	<i>Yeh, for equality for women. I only think that for example, here in my house, we have the same rights so that we can have the same rights to comment and decide on something in mutual agreement. They [the community members] do not give their opinion, they don't have this opinion.</i>
L, Iquitos	<i>Questions should be if women feel able to realise things in life to get ahead, to take forward one's children, to take forward one's home. And women should not feel humiliated in front of a man, there should not be discrimination before men, the machistas. Ask people who think differently to how we thought before.</i>
MC, Iquitos	<i>What questions? Because in reality I would like to ask men these questions, for example, [the questions] that you have interviewed me about, I could ask my spouse also, what his thoughts are. Because it is one thing to give our point of view as a woman and another thing for men to give their point of view. So you can see exactly what are the characteristics of the thinking between men and women, because most of all equity is also given by this.</i>
MC, Iquitos	<i>Of course, because women elaborate more. Well, in my case, you have asked me these questions in front of my husband, but there are women who won't speak in front of their husbands, they're silent. And I think that in a personalised survey, that is, without the husband beside you, it would be better, but in my case I have intended to be as honest as possible because I don't hide anything.</i>
<b>THE SURVEY AS AN EDUCATIONAL OPPORTUNITY</b>	
R, LNR	<i>No, it is all good. All the survey, yes, because it has made me remember the things that I have been taught and yourself you are also telling me, how could I... not forget that the man and woman have the same rights and live well in this community</i>
M, LNR	<i>Well, health, after family relations, to learn what you foreigners bring to teach us, to tell us, to guide us to learn what good things you bring here, to this community. And, also, this is what I say, this interview I have done I will keep this until the day God collects us, this I will put well into my head and I will never forget the questions you asked me, which you bring to us to teach, to explain with much heart, with a lot of friendliness that you have brought here.</i>
<b>FEEDBACK ON THE SURVEY PROCESS</b>	
MT, LNR	<i>Yes, what better than gender equality between women and men in this community, what better, if you can develop something [a future survey]. There can be a development.</i>
R, Iquitos	<i>Because I think so, how do I say, you're raising ideas of different women, you're knowing the problems and the differences most of all of every woman and I think that it will come to a conclusion that is good, that at times it is bad for women [in Iquitos], there is so much on what it is based. Research in economics, in health, in the personal lives of many women, I think there is a problem in this city, I think that [with this information] they can reach a single agreement [for women].</i>
T, Iquitos	<i>I think yes, that you are doing a survey such as this, because I think that your project won't be there [outside of the community], that you will do something here that will improve more, even more, I think it is important this project is important.</i>
R, Iquitos	<i>Yes, I think that it will be good for Iquitos, for everyone, it should be good. Equality for all, as much as for the poor as for those who have a better economic position. I think this survey we have lacked in Iquitos [before now].</i>

## APPENDIX D: 2015 ENDES questionnaire and the INEI summary of available ENDES indicators

### D.1 Overview of ENDES 2015 Structure

<b>Country:</b>	<b>Peru</b>
<b>Phase:</b>	DHS-VII, Sample Design 2015-2017
<b>Implementing Organisation:</b>	Instituto Nacional de Estadística e Informática (INEI)
<b>Fieldwork:</b>	2 semesters annually
<b>Status:</b>	Completed
<b>Households:</b>	Sample Size: 35,900 homes <ul style="list-style-type: none"> <li>- 14,140 from capital cities</li> <li>- 9,310 from other urban</li> <li>- 12,450 from rural areas</li> </ul>
<b>Sampling:</b>	Sampling frame – 2007 Census and SISFOH 2012-2013 Sample type – two-stage, balanced probabilistic, stratified and independent and auto weighted by departmental level and by urban and rural areas. Primary Sample Units (PSU): <ul style="list-style-type: none"> <li>• Urban cluster of geographic area comprised of 120 private homes</li> <li>• Rural cluster either as above or a rural enumeration area formed on one or several villages which together have 120 private homes</li> </ul> PSU (cluster) selected with a probability proportional to size SSU (household) selected from housing registry balancing variables of children, women of childbearing age etc
<b>Female:</b>	Age: 15 to 49 Sample Size: 35,766 women
<b>Male:</b>	No male respondents

## D.2 Demographic characteristics of ENDES 2015

Variable	Frequency	Proportion (%)	Average (SD)	Peruvian census data (2007)	
				n	%
<b>Age</b>	<b>36,415</b>	<b>100%</b>	<b>30 (9.31)</b>		
15-19	5,469	15.02	16.97 (1.44)	1,357,411	18.45
20-24	6,110	16.78	22.02 (1.40)	1,275,808	17.34
25-29	6,468	17.76	27.00 (1.39)	1,164,233	15.83
30-34	6,094	16.73	31.94 (1.41)	1,059,035	14.40
35-39	5,277	14.49	36.89 (1.41)	965,792	13.13
40-44	3,922	10.77	41.85 (1.40)	834,207	11.34
45-49	3,075	8.44	46.95 (1.43)	699,562	9.51
<b>Region</b>	<b>36,415</b>	<b>100%</b>			
Dpto. Amazonas	1,358	3.73		379,882	1.39
Dpto. Ancash	1,318	3.62		1,062,232	3.88
Dpto. Apurímac	1,118	3.07		407,341	1.49
Dpto. Arequipa	1,270	3.49		1,148,400	4.19
Dpto. Ayacucho	1,489	4.09		611,643	2.23
Dpto. Cajamarca	1,160	3.19		1,399,897	5.11
Prov. Const. del Callao	1,583	4.35		870,925	3.18
Dpto. Cusco	1,149	3.16		1,169,927	4.27
Dpto. Huancavelica	1,127	3.09		460,732	1.68
Dpto. Huanuco	1,454	3.99		768,182	2.8
Dpto. Ica	1,444	3.97		711,022	2.59
Dpto. Junín	1,300	3.57		1,229,189	4.48
Dpto. La Libertad	1,401	3.85		1,610,457	5.87
Dpto. Lambayeque	1,710	4.70		1,113,966	4.06
Dpto. Lima	4,408	12.10		8,382,198	30.58
Dpto. Loreto	1,509	4.14		893,985	3.26
Dpto. Madre de Dios	1,213	3.33		102,178	0.37
Dpto. Moquegua	1,187	3.26		160,301	0.58
Dpto. Pasco	1,213	3.33		282,002	1.03
Dpto. Piura	1,521	4.18		1,681,367	6.13
Dpto. Puno	1,021	2.80		1,274,411	4.65
Dpto. San Martín	1,390	3.82		738,944	2.7
Dpto. Tacna	1,241	3.41		285,756	1.04
Dpto. Tumbes	1,376	3.78		196,979	0.72
Dpto. Ucayali	1,455	4.00		431,819	1.58
<b>Rural/urban location</b>	<b>36,415</b>	<b>100%</b>			
Rural	10,490	27.81		2,224,152	29.33
Urban	25,925	71.19		5,358,988	70.67
<b>Marital status</b>	<b>36,415</b>	<b>100%</b>			
Living together	16,339	44.87		2,614,032	24.73
Separated	-			503,560	4.76
Married	8,113	22.28		3,029,601	28.66
Widowed	116	0.32		599,628	5.67
Divorced	73	0.20		67,314	0.64
Single	11,774	32.33		3,757,825	35.54
<b>Employment</b>	<b>36,411</b>	<b>100%</b>			
Yes	21,701	59.60		3,060,355	25.09
No	14,710	40.40		9,137,643	74.91
<b>Ethnicity</b>	<b>36,415</b>	<b>100%</b>			
Quechua	2,530	6.95		3,360,331	13.02
Aymará	157	0.43		443,248	1.72
Otra lengua nativa	410	1.13		242,134	0.94
Castellano	33,310	91.47		21,713,165	84.13
Idioma extranjera	8	0.02		21,434	0.08
<b>Education Level</b>	<b>36,414</b>	<b>100%</b>			
None	773	2.12%		1,741,634	13.39
Primary incomplete	4,449	12.22%		340,035	2.61
Primary complete	3,523	9.67%		4,149,831	31.91
Secondary incomplete	7,597	20.86%		-	-
Secondary complete	9,851	27.05%		3,847,598	29.58
Tertiary	10,221	28.07%		2,926,256	22.50
<b>Literacy</b>	<b>36,371</b>	<b>100%</b>			
No	1,952	5.37%		11,097,340	85.32%
Partial	956	2.63%		-	-
Yes	33,463	92.00%		1,908,014	14.68%



### D.3 ENDES 2015 Variable List

WA SCORE: 21 items over six domains represented *individual achievement*:

#### Education

- 26. Educational attainment (categorical; highest level of schooling achieved)
- 27. Literacy (categorical; illiterate, partially literate, literate)

#### Employment/financial

- 28. Currently working (binary yes/no response)
- 29. Vulnerable employment (categorical; not working, vulnerable employment, non-vulnerable employment. Vulnerable employment is defined as the *sum of employment status groups of own- account workers and contributing family workers* (UN ESA, 2007))
- 30. Wages for work (categorical; not working, unpaid, paid in-kind, mixture, or with cash)

#### Health empowerment

- 31. Knows where to go to get healthcare (binary)
- 32. Getting permission to go to healthcare (binary)
- 33. Getting money to for healthcare (binary)
- 34. Not wanting to go alone to health facility (binary)
- 35. No female health providers (binary)

#### Health access and family planning

- 36. Unmet need for family planning (binary; defined as the percentage of women who do not want to become pregnant but are not using contraception (DHS website))
- 37. Access to condom if necessary (binary)
- 38. Visit to health facility in last 12 months (binary)
- 39. Coverage by health insurance (binary)

#### Age and relationships

- 40. Age at first marriage (binary, <20 years cut-off)
- 41. Age at first intercourse (binary, <15 years cut-off)

#### Permissive attitudes to wife beating

- 42. If she goes out without telling him
- 43. If she neglects the children
- 44. If she argues with him
- 45. If she refuses sex
- 46. If she burns the food

GE SCORE: A total of 15 items over three domains were represented *gender equality*:

#### Partner differences

- 34. Difference in educational attainment (categorical; difference in highest level of schooling achieved between individual woman and her partner)
- 35. Difference in work status
- 36. Difference in vulnerable employment (categorical; the difference in vulnerable employment status between individual woman and her partner)
- 37. Age difference between partners (cut-off > 10 year's age difference)
- 38. Partner earns more?

#### Decision Making

- 39. Decision making, contraception use (categorical; partner, joint, individual)
- 40. Decision making, healthcare (categorical; partner, joint, individual)
- 41. Decision making, what to do with husband's money (categorical; partner, joint, individual)
- 42. Decision making, large household purchases (categorical; partner, joint, individual)
- 43. Decision making, small household purchases (categorical; partner, joint, individual)
- 44. Decision making, visits to family (categorical; partner, joint, individual)
- 45. Decision making, food to cook (categorical; partner, joint, individual)

#### Violence against women

- 46. Control issues identified with partner (ordinal)
- 47. Experience of emotional violence with partner (binary)
- 48. Experience of minor physical violence with partner (binary)
- 49. Experience of major physical violence with partner (binary)
- 50. Experience of sexual violence with partner (binary)



## APPENDIX E: Cognitive interviews analysis framework

PARTICIPANT DETAILS	DOMAIN (Education, employment etc.)						
	Understanding of question	Categories of education	Level of education	Partner's level of education	Gender difference in education	Perceived equality/inequality	Importance of education
1, 2 etc.	Any issues, confusion, wording, understanding	Categorical responses and how these are reflected in real life by ENDES	Individual response (value)	Partner's response (value)	The measured difference (absolute value)	Subjective vs objective equality	How the achievement of this variable will enable an individual to live a full and empowered life
3							
4							

## APPENDIX F: Decision making on domains and measurable indicators

### F.1 EDUCATION

QUALITATIVE OBSERVATIONS	ENDES QUESTIONNAIRE (CHAPTER 6)		RESULTS	COGNITIVE INTERVIEWS (CHAPTER 9)	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
	DOMAIN	QUESTIONS		EMPOWERMENT		
<ul style="list-style-type: none"> <li>- The dual benefit of education for an individual's own life and for future generations.</li> <li>- The intergenerational transmission of empowerment from education/employment.</li> <li>- High poverty and unemployment rates: instrumental nature of higher education in securing employment and income generation.</li> <li>- Link between education and life opportunities, including employment.</li> <li>- Education seen as extending beyond the classroom, life education</li> <li>- Good educational parity at primary level, dropping thorough secondary and tertiary</li> <li>- Education may be more important for women than men because, being financially dependent on men is disempowering</li> </ul>	School attendance	Have you ever attended school?	4 (7.8%) women with no education (82,78,44,65 years - all from LNR)	Education seen overwhelmingly as important by most participants	Reasons for school drop out	LITERACY → ability to perform basic daily administrative tasks
	Educational attainment	What is the highest level of school you attended? Primary, secondary, or higher?	1.7 yrs average difference favouring men (range -7 to +10 years)	Many valued educational opportunities for their children and would make significant personal sacrifices to educate their family, because of the perceived future benefits	Total years of education (vs grade of education)	PRIMARY EDUCATION → more advanced daily tasks, plus increased reach of knowledge and abilities
	Literacy	Now I would like you to read this sentence to me. e.g., "Parents love their children.", "Farming is hard work."	- 13 couples with equal years of education - 7 couples with women who have more years of education - 29 couples with men who have men with more education The majority of participants with at least two years of primary education were literate.	Achievement of education categories has a scaled/stepped value such that: - Basic literacy provides key life/household skills, - Primary education enhances one's basic range of life skills, - Secondary education seems to open the door to employment opportunities - Tertiary education allows the progression to secure employment and 'professionalism'	Quality of education and feelings of equality Importance of education to daily life Informal education and life skills Quantifying ongoing (currently studying) education Age of completion of education Attitudes around education	SECONDARY EDUCATION → employment opportunities and greater promulgation of education of family  TERTIARY EDUCATION → Professional identity, greater employment security

## F.2 EMPLOYMENT

QUALITATIVE OBSERVATIONS	ENDES 2015			COGNITIVE INTERVIEWS		DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
	DOMAIN	QUESTIONS	RESULTS	EMPOWERMENT	ADDITIONAL QUESTIONS	
<ul style="list-style-type: none"> <li>- Strong working mentality expressed by most participants</li> <li>- Working to survive is a norm (daily struggle)</li> <li>- Employment opportunities linked to educational attainment</li> <li>- Work and education central to many value systems and aspirations for future generations</li> <li>- High level of unemployment</li> <li>- Wage disparity</li> <li>- River communities belong in vulnerable, seasonal and informal employment in the form of subsistence farming</li> <li>- Many women fulfil household/housewife roles</li> <li>- Gendered division of job types, absence of women from technical positions</li> <li>- Employment linked to professional identity and a certain pride</li> <li>- Employment also linked to greater financial empowerment and subsequent control over income</li> <li>- Employment/leadership sometimes limited by male partner</li> <li>- Interaction between reproduction and employment</li> </ul>	Recent work	Aside from your own housework, have you done any work in the last seven days?	35.3% vs 42% agriculture 27.5% vs 0% domestic	Work = sacrifice Strong work ethics/mentality – work is dignity and honour Personal identity linked to work especially in rural/agricultural settings where work consumes life Employment is central to survival	<ul style="list-style-type: none"> <li>• Retired as a category of work</li> <li>• Definition of vulnerable work</li> <li>• Housewife category especially common in Iquitos</li> </ul>	UNPAID LABOUR → maintenance of family, contribution to society
	Informal labour	As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. In the last seven days, have you done any of these things or any other work?	11.8% vs 0% unemployed 11.8% vs 8% small business/independent 5.8% vs 8% retired 2.0% vs 4.0% officework 2.0% vs 6.0% hospitality 2.0% vs 4.0% military/security	Employment central to financial and household/family security Informal, temporary work more common in women – more flexibility for home duties yet less individual empowerment	<ul style="list-style-type: none"> <li>• Salary versus work/employment</li> <li>• Current versus previous work – snapshot requires current work status</li> <li>• ‘work’ encompasses many things for people especially in the river, people’s days consist of working in the field, in the house, upkeep etc. All unpaid</li> </ul>	PAID LABOUR → income generation
	Occupation/identity	What is your occupation, that is, what kind of work do you mainly do?	0% vs 8% transport 0% vs 4% teacher 0% vs 4% electricity/mining 0% vs 4% office/IT 0% vs 2% student	Complementarity between partners around agricultural work Disempowerment driven by poverty More women than men unemployed or unpaid	<ul style="list-style-type: none"> <li>• Interrelationship between education and employment (is career congruent with education level?)</li> <li>• Occupation, profession, versus work</li> <li>• Seasonal, paid, unpaid</li> <li>• Level of salary</li> </ul>	FORMAL CONTRACT → job security and financial power
	Employer	Do you do this work for a member of your family, for someone else, or are you self-employed?	0% vs 2% porter 0% vs 2% estibador 0% vs 2% redes	Men have more pressure to be breadwinners for family ‘Good’ employment linked to solid educational base	<ul style="list-style-type: none"> <li>• Work and financial security interrelationship</li> <li>• Reasons for not working</li> <li>• Workload – multiple jobs?</li> <li>• Working difficult to quantify if there is a young person who is still in school</li> </ul>	WAGED LABOUR, PROFESSIONAL → professional identity, respect, greater financial incentive and power
	Seasonality	Do you usually work throughout the year, or do you work seasonally, or only once in a while?				
	Payment / wages	Are you paid in cash or kind for this work or are you not paid at all?				

### F.3 DOMESTIC DUTIES

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
<p>- Delineated gender roles around labour/domestic spheres</p> <p>- Double burden of domestic and paid labour</p> <p>- Women take on domestic duties, replicated across generations and within families (not just partnerships)</p> <p>Labour regulations concerning working women includes, among others:</p> <p>&gt; Law 26644/96: rest for working pre natal and post natal pregnant.</p> <p>&gt; The Supreme Decree 016/95: Vital Minimum Remuneration Act.</p> <p>&gt; Law 27986/05: Law Workers Home</p> <p>&gt; Law 27240/99 and modifications Leave Act</p> <p>2006 Breastfeeding.</p>	Not directly assessed in ENDES. Time use and burden of work needs quantification	<p>Between you and your partner/husband, who normally does the:</p> <ul style="list-style-type: none"> <li>- Cleaning?</li> <li>- Cooking?</li> <li>- Childcare?</li> </ul>	<p>31 (60.8%) interviews where the women perform the majority of the housework</p> <p>12 (23.5%) interviews identify shared housework</p> <p>8 (15.7%) women who share work with female family members (daughters, sisters, mothers)</p> <p>No men identified as being the sole provider of housework duties</p> <p>Gilbert, 30, male - <i>El hombre es machista, pero la mujer también tiene carácter; si no la ayudamos no hace nada.</i></p>	<p>More women than men perform burden of domestic work</p> <p>No men are majority providers of domestic duties.</p> <p>- Domestic work = burden to women but not valued (by her or society).</p> <p>Although domestic work is a necessity</p> <p>- not valued as a "means to get ahead" like paid work</p> <p>- Housework = investment in wellbeing of children, ie next generation's betterment</p> <p>- Women take on double burden of work</p> <p>- Expectations, roles and stereotypes transmitted via the family. Machismo.</p> <p>- Strong woman and opinions important for setting a role model and expectations.</p> <p>- Rivereños perform same pattern of work, traditionally delineated roles but seen as "working together" for sake of family, community</p> <p>- Link between machismo and male behavioural roles in the domestic sphere - how macho men would not participate around the house</p> <p>- Traditional gender roles are assumed until there is a necessity - in this case the male will step in and 'help out'</p>	<ul style="list-style-type: none"> <li>• Categories identified include: childcare, cooking, washing, ironing, sweeping, cleaning</li> <li>• Hours of time spent working in the home</li> <li>• Household norms and expectations</li> <li>• Time use surveys an important addition to quantify burden of domestic work</li> </ul>	<p>WOMAN-DOMINANT ROLES → Women's value limited to within domestic sphere, lack of formal/economic recognition</p> <p>SOME MALE PARTICIPATION → less burden of domestic duty on women allowing for greater societal participation</p> <p>SHARED DUTIES → Women able to move outside of domestic sphere, greater female economic empowerment, men able to fulfil meaningful parenting roles</p>

## F.4 FINANCIAL EMPOWERMENT

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
<ul style="list-style-type: none"> <li>- Lack of opportunity for employment/income generation limited</li> <li>- Many women don't generate their own income</li> <li>- Subsistence farming lifestyle means most live below poverty line</li> <li>- Poverty drives equality but not empowerment</li> <li>- Money seen as a power factor in relationships</li> <li>- Financial empowerment of women transmitted to their offspring/household</li> </ul>	Control over own income	Who usually decides how the money you earn will be used: you, your (husband/partner), or you and your (husband/partner) jointly?	<b>FINANCIAL DECISION MAKING</b> <ul style="list-style-type: none"> <li>• Completely Joint – 16 (34%)</li> <li>• Joint with male dominance – 8 (17%)</li> <li>• Joint with female dominance – 9 (19.1%)</li> <li>• Female dominance – 3 (6.4%)</li> <li>• Male dominance – 9 (19.1%)</li> </ul>	Earning linked to previous education Extreme resource shortage and poverty leads to equal levels of disempowerment Parenting/unpaid domestic labour restricts ability to participate in paid work Perception of joint decision – often male-dominated High level of financial dependence by women on men	1) Process around income generation for the household a. Travel to Iquitos b. Frequency of market selling c. Formality of sales d. Security of market 2) Who actually handles the money and what process exactly happens a. Need to separate 'handling' cash and having OWN cash for personal use... mainly people here seem to spend all that they have on bare necessities.	Presence of own income → economic empowerment, not dependent on spouse/husband/family  Control over own income → power to make decisions around important purchases  Wage discrepancy
	Wage discrepancy	Would you say that the money that you earn is more than what your (husband/partner) earns, less than what he earns, or about the same?	<b>HIGHER EARNING</b> <ul style="list-style-type: none"> <li>• Same, 14 (26.9%) partners</li> <li>• Women earn less, 28 (53.8%) partners</li> <li>• Women earn more, 0 (0%) partners</li> </ul>	Empowerment from own earnings, higher education Majority of family earnings towards children/family needs	b. Power differentials between men and women around amount of money earned	
	Control over husband's earnings	Who usually decides how your (husband's/partner's) earnings will be used: you, your (husband/partner), or you and your (husband/partner) jointly?	<b>CREDIT AND BANK ACCOUNTS</b> Most partners equally disempowered – neither had bank accounts 4 partnerships where the man had bank account and the woman didn't 1 situation - woman was single/separated and had access to a bank account 1 situation - both partners had a bank account	Importance of social security systems for healthcare Power differentials driven by educational/employment differentials Two overlapping disempowering influences – poverty and gender	3) In the household, who decides how to spend the money 4) Financial security 5) Access to bank or credit facility 6) Pay/income frequency 7) Financial support from social programmes	Access to credit
	Access to credit and bank account	To you have a bank account? Do you know how to access credit if you need?				

## F.5 ASSET OWNERSHIP

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
Peruvian law necessitating that all large assets, including house, land and businesses are co-owned	Home ownership	Do you own this or any other house either alone or jointly with someone else?	20 x interviewees who did not own their own house - Of which, 5 rented and 15 lived with family	Importance of home ownership – security and stability Inheritance, ownership and business laws driving equality between spouses	Ownership of house and land is a pretty well understood term with categorical/binary outcomes. However, it is not possible to measure differences due to Peruvian ownership laws, mentioned below. No other categories of ownership assessed – for example, other property, boats, large items	LEGAL/SOCIAL ENVIRONMENT → joint land/house titling and shares empowerment around inheritance
<p>National legal framework:</p> <ul style="list-style-type: none"> <li>- Constitution 1993,</li> <li>- The Civil Code - Legislative Decree No.295 / 84.</li> <li>- Law 27495/02: divorce equality between women and men.</li> <li>- The Civil Code (1984), legal inheritance mechanisms</li> <li>- Law 24657/87.</li> </ul> <p>Demarcation and Titling Act of the Territory of rural communities</p> <ul style="list-style-type: none"> <li>- Legislative Decree 2/80.</li> </ul> <p>Promotion Act and Agricultural Development</p> <ul style="list-style-type: none"> <li>- Law 24656/87. General Law of Peasant Communities</li> <li>- The Land Law 26505/95</li> <li>- Legislative Decree 653/91.</li> </ul> <p>Law on Investment Promotion in the Agricultural Sector</p>	Land ownership	Do you own any land either alone or jointly with someone else?	26 x interviewees owned their own house - Of which 9 did not own land			<p>ACCESS TO FINANCES → Greater financial empowerment and purchasing power</p> <p>OWNERSHIP OF RESOURCES → mobility and choice, security, family asset accumulation</p> <p>If equal ownership is a common thing throughout Peru, there will be limited value in including this indicator to differentiate gender at an individual level.</p>



## F.6 HOUSEHOLD DECISIONS

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
<ul style="list-style-type: none"> <li>- A “process” indicator reflecting communication, negotiation and decision</li> <li>- Household goods and animal purchases</li> <li>- Male traditionally seen as head of house and decision maker</li> <li>- Severe financial constraints influence importance of household purchasing</li> <li>- Men perceived as irresponsible with spending money and prone to alcohol use</li> <li>- Communication a cornerstone of agreement in decision making</li> <li>- Male dominance over healthcare interactions and decision making</li> <li>- Community-level decision making through small, formal structures in each community, mainly male-dominated</li> <li>- Women lack voice in decision making</li> </ul>	Healthcare decision making	Who usually makes decisions about health care for yourself: you, your (husband/partner), you and your (husband/partner) jointly, or someone else?	Decision on healthcare Joint = 12 (46.2%) Woman-dominant = 9 (34.6%) Male-dominant = 5 (19.2%)	Male decision-making dominant in financial decisions Decision-making influenced by living single or in a partnership. ‘Single’ seemed more empowering for women > men Gender roles replicated in decision making process Dominance in decision-making reflects age/education diff. Lack of economic empowerment with age (no economic activity)	Household decision making assessed by: 1. Who makes decisions (around large purchases) i 2. Who manages money around large purchases, financial decision making 3. Healthcare decision-making for individual woman and household 4. Family visiting How does the process of household decisions work? Who ultimately decides? - Who decides, roles/stereotypes around decision making, money/spending, and healthcare - Whether this happens in other households – can this be generalised? - Household items vary depending on the setting (animals in rural areas versus appliances in urban settings - Who is the ‘head’ of the household	<p>MALE-DOMINANT → male dominant outcomes, expression of male interests and power, reinforcement of power imbalances</p> <p>JOINT → shared process of decision making, reflecting men’s and women’s needs, and balance of power</p> <p>FEMALE DOMINANT → female’s needs more likely to be represented, with expression of female power</p>
	Household purchase decision making	Who usually makes decisions about making major household purchases?	Decisions on household purchases Joint = 18 (40.9%) Woman-dominant = 9 (20.5%) Male-dominant = 12 (27.3%) Financial management and decisions Joint = 5 (22.7%) Woman-dominant = 7 (31.8%) Male-dominant = 10 (45.8%)	In household purchases: - Despite joint/male decision process, women do hard work of actually buying the goods - Women perceived as ‘knowing’ house needs - Men seen as head of house		
	Family visits, access to family and freedom of movement	Who usually makes decisions about visits to your family or relatives?	Decisions on family visits Joint = 10 (52.6%) Woman-dominant = 5 (26.3%) Male-dominant = 4 (21%)	In healthcare: - Women associated providing healthcare for family/ children - Men with education often act as health ‘interpreter’ for spouse  In financial management: - Single women have greater decision-making power - Educated women report more power in financial decisions - Poverty limits decision making, drift to joint decisions out of necessity - Male breadwinners will often have more financial decision making power		

## F.7 AGE AT FIRST MARRIAGE/BIRTH

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
<p>The role of partnerships and relationships is central to Peruvian culture. Relatively sexually liberated environment</p> <p>Sexuality less upfront in river communities</p> <p>Marriage often not formalised, long-term partnerships are common</p>	Age of marriage/ cohabitation	In what month and year did you start living with your (husband/partner)?	<p>Average female age at first cohabitation 18.68 years (range 15-34)</p> <p>Average male age at first cohabitation 24.95 years (range 17-54)</p>	<p>- Importance of maturity in age at first marriage for women – power, relationship dynamics etc.</p> <p>- Education and employment opportunities limited by early marriage and/or childbirth</p> <p>- Love and communication essential in partnerships</p> <p>- Age/employment/ education differentials may drive power differentials in relationship</p>	<ul style="list-style-type: none"> <li>• Age = continuous/categorical</li> <li>• Age versus subjective feeling of maturity/readiness</li> <li>• Marriage versus starting to cohabit – many couples not married</li> <li>• Age difference between partners</li> <li>• Adolescent pregnancy and disempowerment</li> <li>• Difficulty in situations of multiple long term partners and children born to different fathers</li> <li>• Opinion around what is too young</li> <li>• Current versus previous relationships and how we disentangle this</li> </ul>	Marriage >20 years and sexual onset >15 years (reflecting adult/mature decisions)
	Parity and age of first birth	Now I would like to ask about all the births you have had during your life. Have you ever given birth? How old were you when you first gave birth?	<p>Average female age at first birth 18.74 years (range 15-27)</p> <p>Average male age at first birth years (range 18-50)</p>			Equal age (within 5 years) differential >10 years indicates possible power imbalance
	Age of first sexual intercourse	How old were you when you had sexual intercourse for the very first time?				Reflection on education and employment equality above

## F.8 CONTRACEPTION USE

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
<ul style="list-style-type: none"> <li>- SRH at intersection between gender health and human rights</li> <li>- Loreteños more sexually liberated yet keep many conservative family values</li> <li>- Sexual interactions outside of main partnerships were common, more so for men</li> <li>- Overlap of STD prevention and family planning</li> <li>- Government provision of FP services, including contraception</li> <li>- Government services limited by lack of stock, limited service providers, and geography/poverty</li> <li>- Social and religious ideology around contraception from past</li> <li>- Transactional sex and prostitution</li> </ul>	Contraception use and method	<p>Are you currently doing something or using any method to delay or avoid getting pregnant?</p> <p>Which method are you using?</p> <p>In the last 12 months, has someone talked to you about family planning?</p>	<p>Never used, n= 12 (24.5%)</p> <ul style="list-style-type: none"> <li>- Lack of availability</li> <li>- Religion</li> <li>- Poverty</li> </ul> <p>Current use of modern technique, n=26 (53.1%)</p> <ul style="list-style-type: none"> <li>- Mainly depo injection and OCP</li> </ul> <p>Current use of traditional/rhythm method, n=3 (6.1%)</p> <ul style="list-style-type: none"> <li>- Traditional herbs and rhythm method</li> </ul> <p>Not currently using, n=8 (16.3%)</p> <ul style="list-style-type: none"> <li>- Menopausal</li> <li>- Pregnancy</li> <li>- Planning pregnancy</li> <li>- Medical problems</li> </ul> <p>Decision making perceived as being a:</p> <ul style="list-style-type: none"> <li>- Joint process, n=28(57.1%)</li> <li>- Female dominant decision, n=5 (10.2%)</li> <li>- NA, n=16 (32.7%)</li> </ul>	<ul style="list-style-type: none"> <li>- Family planning important to control family size and therefore life financial burden on the family</li> <li>- STD prevention and condom usage</li> <li>- Lack of faith in partner's fidelity</li> <li>- The importance of family planning and smaller family size would be apparent in reducing maternal and childhood mortality and also delaying pregnancy until an older age.</li> <li>- Some women describe the pressure to have sex from her husband and how the responsibility was on her to avoid pregnancy - it was like she had to be hyper vigilant</li> <li>- Links between religion and parental behaviours affecting her use and approach to contraception</li> </ul>	<ol style="list-style-type: none"> <li>1. Use of contraception</li> <li>2. Type of contraception</li> <li>3. Access to contraception</li> <li>4. Ideal number of children desired</li> <li>5. Decision making with partner about contraception</li> <li>6. Reasons for non-use or cessation</li> </ol> <p>NB. In rural areas and in impoverished populations (where people are on SIS) usually on the OCP and depo injections are available for contraception</p> <p>Condom use seems especially low in the rural areas – cost/access problems</p> <p>Natural and traditional methods need to be considered</p> <p>Male contraception use</p> <p>Need to account for post-menopausal women not using contraception</p> <p>Need to adjust for current pregnancy</p>	<p>Use of modern form of contraception of high importance for women and men</p> <p>Unmet need for contraception as defined by USAID/ENDES</p> <p>Access to contraception assessed via education/talking to someone around FP</p> <p>Joint decision making process / communication</p>
	Education and access to family planning					
	Desired number of children. Future fertility and family planning	Does your (husband/partner) want the same number of children that you want?				
	Decision making around contraception	Would you say that using contraception is mainly your decision, mainly your (husband's/partner's) decision, or did you both decide together?				

## F.9 HEALTHCARE ACCESS

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
<ul style="list-style-type: none"> <li>- Health a reflection of gender inequality</li> <li>- Symbiotic nature of equality and health</li> <li>- Inequality's impact on self-esteem, psychological, and physical</li> <li>- Gender equality, health, and human rights</li> <li>- Family planning and contraception use</li> <li>- Violence</li> <li>- Access limited by geography and poverty</li> <li>- Discrimination within the healthcare system</li> </ul>	Barriers to healthcare access	<p>Many different factors can prevent women from getting medical advice or treatment for themselves. When you are sick and want to get medical advice or treatment, is each of the following a big problem or not?</p> <ul style="list-style-type: none"> <li>– Getting permission to go to the doctor?</li> <li>– Getting money needed for advice or treatment?</li> <li>– The distance to the health facility?</li> <li>– Not wanting to go alone?</li> <li>– Not having a female doctor?</li> </ul>	<p>8 participants = fair understanding and one demonstrated poor understanding.</p>	<p>Widespread recognition of the importance of health to one's life and social development</p> <p>Most participants felt there were no clear gender differentials in healthcare access yet I observed significant gender differentials</p>		<p>"Health empowerment indicators" may be possible to quantify gendered aspects of health access:</p>

## F.10 VAW ATTITUDES AND EXPERIENCES

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
<ul style="list-style-type: none"> <li>- Some of the world's highest recorded rates of VAW</li> <li>- Many stories of personal DV experiences</li> <li>- Link between alcohol and DV</li> <li>- Disruption of lives and intergenerational impact of DV</li> <li>- Machismo and violence</li> <li>- Role of men in prevention and elimination of VAW</li> <li>- Shift in behaviours at societal and household level required</li> <li>- Some community-level programmes and prevention in place but may identify needing more services</li> <li>- Community education and human rights language</li> </ul>	Attitudes towards VAW	<p>In your opinion, is a husband justified in hitting or beating his wife in the following situations:</p> <ul style="list-style-type: none"> <li>- If she goes out without telling him?</li> <li>- If she neglects the children?</li> <li>- If she argues with him?</li> <li>- If she refuses to have sex with him?</li> <li>- If she burns the food?</li> </ul>	<p>The majority of women (n=40) interviewed do not believe that violence is permissible in any situation</p> <p>On the whole, if women stated they did not permit violence in any single of the situations, then they would answer the same throughout all of the presented situations in the questionnaire</p> <p>The majority of men interviewed (n=11) do not believe that violence is permissible in any situation</p>	<ul style="list-style-type: none"> <li>- Familial transmission of violent behaviour</li> <li>- Communication between spouses was also positioned as a means by which to overcome violence</li> <li>- On the whole, many people recognised that violence was a problem. Some were resigned to the fact that it existed despite being anti-VAW</li> <li>- Importance of intra-household norms and role models in promoting anti-violent behaviours</li> <li>- Beyond communication, education around human rights and use of human rights concepts and language are a means to protect and prevent VAW</li> <li>- Problem of under-reporting and not denouncing violence</li> <li>- Machismo/marianismo and the promulgation of violence</li> </ul>	<p>Hypothetical scenarios: in which/any situation is/would VAW be acceptable?</p> <p>Both male and female attitudes against violence and if/how these differ</p> <p>Real life experience and lifetime prevalence of domestic violence</p> <p>The importance of familial and intergenerational effects of violence</p> <p>It was difficult to measure an inter-spousal/intra-household differences. What seemed apparent was that if one expressed anti-violence opinion, it was more likely their spouse also shared their opinion. This points towards the importance of household-level attitudes and penetration of anti-violent sentiment into the household. Perhaps this would be via education or having a strong woman or man take the lead in setting norms at an individual level</p>	<p>Attitudes supporting VAW – negative points?</p> <p>Attitudes against VAW – positive points?</p> <p>VAW questions – if someone answers negatively towards a certain sub-question, they are more likely to answer negatively for all questions</p> <p>If one positive, these tend to be more specific to the activity/situation rather than a general acceptance of violence</p> <p>Community-level lifetime prevalence of VAW and/or individual experience of VAW</p>

## F.11 POLITICAL REPRESENTATION

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
<ul style="list-style-type: none"> <li>- Leadership a reflection of empowerment on an individual and societal level</li> <li>- Power imbalances play out in the home and on societal level</li> <li>- Many women feel under-respected and unable to fulfil their potential</li> <li>- The role of an individual leader seen as empowering for other women too</li> <li>- Women as leaders seen as responsible, caring, reliable and good for other women and families</li> <li>- Recognition of inequality in leadership/power structures</li> <li>- Strong desire of many participants to see more women in power</li> <li>- Peruvian quota law</li> </ul>	Not assessed directly in the ENDES. Surrogate data necessary from local political registries	<p>Knowledge of local leaders and political representatives assessed by:</p> <p>Do you have any local female/male leaders?</p> <p>Do you have any female/male political representatives?</p>	<p><u>Women's result</u> 34 aware of female community leaders 12 couldn't identify female leaders and/or there were no female leaders</p> <p><u>Men's result</u> 36 aware of male community leaders 9 couldn't identify male leaders and/or there were no local male leaders</p> <p>Perception around more women or men leaders: - Equal 8 - More women 9 (in secretarial/lower level) - More men 19 (public/formal roles)</p>	<ul style="list-style-type: none"> <li>- Machismo impacts upon the balance of male and female political representation.</li> <li>- Change in political/leadership landscapes which has seen an entry of more women into positions of power and public presence.</li> <li>- Women tended to have local roles pre-defined by specific government programmes such as Juntos, whereas men tended to fulfil more formal "community head" and political representative roles.</li> <li>- Leaders are held in high respect by many with some pessimism by a few</li> <li>- Women are perceived as being more trustworthy and hardworking as leaders, being influenced by their typical gender roles such as in the domestic sphere</li> <li>- Men fill more leadership and political positions than women still</li> <li>- In local and regional levels, a quota system is in place ensuring at least 30% women candidates are put forward for each election, meaning some regulation of political candidate equality</li> </ul>	<p>Level of leadership, local context and leadership structures</p> <p>Leadership roles and gender roles</p> <p>Number of local leaders</p> <p>Definition of a leader</p> <p>Local decision-making process</p> <p>Participation in community meetings</p> <p>Perceived differences between male and female leadership/styles</p> <ul style="list-style-type: none"> <li>• Measuring political representation is highly variable, subjective, and open to much error in reporting.</li> <li>• Furthermore, wording and lexicon became an issue where women and men had different formal titles for their own specific forms of leadership</li> <li>• This may be overcome by introducing a hybrid form of measurement locally, such as from local elections/electoral roles</li> </ul>	<p>DOMINANCE OF MALE LEADERS → status quo, some men protecting self-interests, and others more broadly focused</p> <p>EQUAL NUMBERS OF MALE/FEMALE LEADERS → more representative decisions and shared focus on gender-specific issues</p> <p>GREATER WOMEN LEADERS → seen as being more in touch with women and families, sensitive, responsible/reliable</p> <p>... Not available in ENDES</p>

## F.12 COMMUNITY PARTICIPATION

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
Lack of women's voice both in the home and at a community level	Not assessed by ENDES/DHS	Are you/your partner a member of any community group or organisation?  What does this group do?  Participation in community meetings	<p><b><u>Women's result</u></b> Group participation - Yes 16 (Juntos, women's groups, agricultural cooperatives, church/religious group, VAW group) - No 34</p> <p>Community meetings - Yes 18 (School meetings, community reunions) - No 13</p> <p><b><u>Men's result</u></b> Group participation - Yes 19 (School, APAFA, Football, agricultural group, church/religious group, neighbourhood group) - No 25 Community meetings - Yes 21 (Town meetings, school meetings, political meetings) - No 9</p>	<p>Some couples display equality of non-participation, yet not empowerment Despite participation in meetings, it is often the case that men make the final/higher decisions I observed that many women will attend these meetings but not speak up for themselves. Also, although there are women leaders, their roles are typically in social services (ie. JUNTOS) or children/nutrition (Vaso de Leche). Men tend to hold positions of power in more typical political roles...</p> <p>Sometimes a disability will interfere with community meeting/group participation (intersectionality of disability and gender). Women do attend meetings but only as a 'second' when their spouse is absent The importance of community groups seems twofold here. Firstly, participation in labour groups provides support networks and may increase productivity. The second is a broader community input into decisions and ideas</p>	<p>Group membership and participation Community meetings and participation Local community groups include APAFA, Juntos, Vaso de Leche Sporting teams Labour/agricultural cooperative participation Informal networks of support Roles and leadership structure within community groups</p>	<p>Measuring:</p> <p>Actively participating in community group</p> <p>Leadership role with community group</p> <p>Participation in community meetings</p> <p>Leadership role in community meetings</p>

## F.13 GENDER ROLES AND STEREOTYPES

QUALITATIVE OBSERVATIONS	DOMAIN	ENDES 2015 QUESTIONS	RESULTS	COGNITIVE INTERVIEWS EMPOWERMENT	ADDITIONAL QUESTIONS	DECISION ON THE RELATIVE VALUE & IMPORTANCE OF COMPONENT INDICATORS
<ul style="list-style-type: none"> <li>- Women submissive</li> <li>- Women's focus on household, family, children</li> <li>- Gender role of domestic workers.</li> <li>- "Suffering" as synonymous with being a woman</li> <li>- Self-perception of multi-focused, stressing around household dynamics, finances, children, work and relationships</li> <li>- MACHISMO a strong cultural influence, harmful in different ways to both men and women</li> <li>- Lack of respect for women by men</li> </ul>	Not directly assessed by ENDES	<p>What do you think a woman's role in this community should be?</p> <p>What do you think a man's role in this community should be?</p>	<p>WOMEN</p> <ul style="list-style-type: none"> <li>- Caring, community minded</li> <li>- Women as housewives, childrearing</li> <li>- Education and importance</li> <li>- Intelligence and confidence</li> <li>- Change of women's roles, entry to workforce</li> <li>- Multi tasking, multiple roles</li> <li>- Secondary role to support men/male head of house</li> </ul> <p>MEN</p> <ul style="list-style-type: none"> <li>- Helping women</li> <li>- Head of house</li> <li>- Working mentality</li> <li>- Leaders, community and family</li> <li>- Men as authority, doing the right thing</li> <li>- More public activities</li> <li>- Agriculture and field labour</li> <li>- Working to get ahead in life</li> <li>- Abandoning spouse</li> <li>- Substance abuse</li> </ul>	<ul style="list-style-type: none"> <li>• Education = promoter, lack of education = barrier to fulfilment of potential.</li> <li>• Education = promoting women's entry into professional workforce, promoting empowerment</li> <li>• Generally divided perceived gender roles and expectations – men occupy more visible, public roles (work, sport and leadership) and women tend to occupy more private roles (family, house, motherhood)</li> <li>• Men and women have the right to similar activities and professions, inciting human rights language to argue for equality</li> <li>• Recognition of change around gender roles - more women entering workforce and gaining professional skills and education.</li> <li>• Not matched by a shift in men's roles and attitudes to childraising.</li> <li>• Strong sense of responsibility of men to be lead of family and set good example at community level</li> <li>• Women seen as being more caring, responsible, family-oriented, community-minded and reliable.</li> <li>• Hardworking mentality in both men and women. Seen as men's role to work for their family to bring home the bread. Women seen as hardworking, positioned as being more caring, conscientious</li> </ul>	<ul style="list-style-type: none"> <li>• Marianismo and the perception of what a women "should" be</li> <li>• Role models, parenting, and how to be a good community member</li> <li>• Rather than "what are mens/women's roles" she was asked "what are the activities of men vs women?"</li> <li>• What are the roles - wording can be tricky, ie. what do men and women do? What are their roles? What's important for either men or women?</li> <li>• Role of men and women, and whether or not they are changing.</li> <li>• Expectations of gender-specific behaviours</li> </ul>	<p>This will be difficult to quantify however, some attitudinal questions may be included such as:</p> <p>Recognition of macho culture/behaviours</p> <p>Traditional gender role assignments</p> <p>Agreement with statements supporting equality</p> <p>Exposure to mass media?</p>



# APPENDIX G: Processing of each WAGE variable in detail

## **G.1 WA SCORE ITEMS**

### **Education**

#### **1. Educational attainment**

- Most participants saw education as overwhelmingly important to their lives and for the advancement of future generations
- Education achievements seemed to have a hierarchy, such that having basic literacy provides key life/household skills, having primary education enhances one's basic range of life skills, having secondary education seems to open the door to employment opportunities, and having tertiary education allows the progression to secure employment and a level of 'professionalism'
- Optimal level of education considered as tertiary but secondary was favourable to provide life opportunities and advancements

**ENDES indicator:** education level (categorical; highest level of schooling achieved)

#### **Questionnaire number**

107: Alguna vez asistió la escuela?

108: Cuál fue el año o grado de estudios más alto que aprobó?

#### **Data code**

V149: Female educational attainment

#### **Total responses**

N = 24,023

#### **Missing responses**

N = 1

#### **ENDES Coding**

0 No education

1 Incomplete primary

2 Complete primary

3 Incomplete secondary

4 Complete secondary

5 Higher

#### **Recoding/creation of new category**

None required (n=24,023)

Missing (n=1)

#### **Optimal level of achievement**

EDU<sub>optimal</sub> = 5

#### **Transformation to GAP score**

$$\begin{aligned} \text{GAP}_{1\text{edu}} &= \text{EDU}_{\text{optimal}} - \text{EDU}_{\text{actual}} \\ &= 5 - \text{EDU}_{\text{actual}} \end{aligned}$$

## 2. Literacy

- The capacity to read and write, linked to education, ensured that individuals were able to either a) continue education, or b) participate in the labour force in a more confident manner.
- The concept of literacy linked to financial and health literacy too – for example, those who felt they could understand the health system often had better levels of literacy and education. Many rural dwellers have low levels of health literacy and low self-esteem, women were further disadvantaged by their indigenous heritage or poverty.

**ENDES indicator:** literacy, able to read and write (categorical; illiterate, partially literate, literate)

### Questionnaire number

114: *Ahora me gustaria que usted lea en voz alta alguna de estas frases*

(only required if women had education of primary or less, , assumed literate if secondary or greater)

### Data code

V155: *female literacy*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

- 0 Cannot read at all
- 1 Able to read part of sentence
- 2 Able to read whole sentence
- 3 No card with language
- 4 Blind/visually impaired

### Recoding/creation of new category

Excluded (n=16)

- 3 No card with language
- 4 Blind/visually impaired

New coding (n=24,008)

- 0 Not literate
- 1 Partially literate
- 2 Fully literate

### Optimal level of achievement

LIT<sub>optimal</sub> = 2

### Transformation to GAP score

GAP<sub>lit</sub> = LIT<sub>optimal</sub> – LIT<sub>actual</sub>  
= 2 – LIT<sub>actual</sub>

## Employment/financial

### 3. Current employment

- Importance of work to individual identity as evidenced by a strong prevailing work ethic, especially in rural subsistence communities where one must work to contribute to the household and community
- Beyond this, work was seen a means of survival – financial/economic necessity. Work was linked to “providing” for the household/children/family

**ENDES indicator:** currently working (binary yes/no response)

#### **Questionnaire number**

707: *La semana pasada, ¿Ud. ha realizado algún trabajo, aparte del trabajo del hogar?*

709: *¿Ud. ha trabajado en los últimos 12 meses?* (if not, skip to 716A)

#### **Data code**

V714: *female participant working*

#### **Total responses**

N = 24,024

#### **Missing responses**

N = 0

#### **ENDES Coding**

0 = not working

1 = working

9 = don't know, didn't answer

#### **Recoding/creation of new category**

Excluded (n=9)

9 = don't know, didn't answer

New coding (n=24,015)

0 = not working

1 = working

#### **Optimal level of achievement**

$WORK_{\text{optimal}} = 1$

#### **Transformation to GAP score**

$GAP_{\text{work}} = WORK_{\text{optimal}} - WORK_{\text{actual}}$   
 $= 1 - WORK_{\text{actual}}$

#### 4. Vulnerable employment

- *Vulnerable employment is defined as the sum of employment status groups of own- account workers and contributing family workers (UN ESA, 2007)*
- Stability of employment linked to secure financial situation, work identity, lower stress
- Women observed to be more likely to work multiple, informal jobs

**ENDES indicator:** transformed from occupation (categorical; not working, vulnerable employment, non-vulnerable employment)

##### Questionnaire number

710: *¿Cuál es su ocupación, es decir, qué clase de trabajo hace Ud. principalmente?*

##### Data code

V717: *Respondent's occupation*

##### Total responses

N = 24,024

##### Missing responses

N = 0

##### ENDES Coding

- 0 Did not work
- 1 Professional, Technical, Managerial
- 2 Clerical
- 3 Sales
- 4 Agricultural/self-employed
- 5 Agricultural/employee
- 6 Household & domestic
- 7 Services
- 8 Skilled manual
- 9 Unskilled manual

##### Recoding/creation of new category

0 = not working

Did not work (V717==0) or  
Not working (V714==0)

1 = vulnerable employment

4 Agricultural/self-employed  
9 Unskilled manual

2 = stable employment

1 Professional, Technical	2 Clerical
3 Sales	5 Agricultural/employee
6 Household & domestic	7 Services
8 Skilled manual	

##### Optimal level of achievement

$VUL_{optimal} = 2$

##### Transformation to GAP score

$GAP1_{vul} = VUL_{optimal} - VUL_{actual}$   
 $= 2 - VUL_{actual}$



## 5. Hierarchy of employment

- Peruvian National Classification of Occupations 2015 (1) defines a hierarchy of four key levels of employment competency:
  1. Simple and routine physical or manual tasks.
  2. Performance of tasks such as handling of machinery and electronic equipment, driving vehicles, maintenance and repair of electrical and mechanical equipment, and handling, ordering and storage of data and other forms of information.
  3. Complex technical tasks and practices that require extensive and extensive practical, technical and procedural skills in a specialised work environment.
  4. Ability to solve complex problems, make decisions and act creatively based on a vast body of theoretical and practical knowledge about a specialised field.
- These have been used by ENDES to categorise and rank occupations (1)

**ENDES indicator:** occupation (categorical; not working, level 1, level 2, level 3, level 4 competencies)

### Questionnaire number

710: *¿Cuál es su ocupación, es decir, qué clase de trabajo hace Ud. principalmente?*

### Data code

V717: *Respondent's occupation*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

- 0 Did not work
- 1 Professional, Technical, Managerial
- 2 Clerical
- 3 Sales
- 4 Agricultural/self-employed
- 5 Agricultural/employee
- 6 Household & domestic
- 7 Services
- 8 Skilled manual
- 9 Unskilled manual

### Recoding/creation of new category

0 = not working

Did not work (V717==0) or  
Not working (V714==0)

1 = Level One

- 4 Agricultural/self-employed
- 5 Agricultural/employee
- 6 Household & domestic
- 9 Unskilled manual

2 = Level Two

3 Sales

7 Services

8 Skilled manual

3 = Level Three

2 Clerical

4 = Level Four

1 Professional, Technical, Managerial

**Optimal level of achievement**

$EMP_{\text{optimal}} = 4$

**Transformation to GAP score**

$$\begin{aligned} \text{GAP}_{1\text{emp}} &= EMP_{\text{optimal}} - EMP_{\text{actual}} \\ &= 4 - EMP_{\text{actual}} \end{aligned}$$

## 6. Wages

- Although employment itself was linked to a sense of greater personal agency, it was the financial empowerment that work enabled that was most valued by participants.
- Financial empowerment linked to survival and getting ahead

**ENDES indicator:** wages for work (categorical; not working/unpaid, paid in-kind, mixture of in-kind and cash, or with cash alone)

### Questionnaire number

716: ¿A Ud. le pagan (pagaban) o usted gana (ganaba) en dinero o en especie por el trabajo que realiza(ba)?

### Data code

V741: *Type of earnings for work*

### Total responses

N = 16,725

### Missing responses

N = 7,299

Explained by n=7,299 individuals who had not worked in the last 12 months, V731

### ENDES Coding

- 0 not paid
- 1 cash only
- 2 cash and in kind
- 3 in kind only

### Recoding/creation of new category

Re-ordering of categories to create ordinal variable

V741: *Type of earnings for work*, n=16,725

- 0 = not paid
- 1 = in kind only
- 2 = mixed cash & in-kind
- 3 = cash only

New category created for “does not work: (has not worked in the last 12 months), n=7,299

- 0 = does not work (V731==0)

Overall revised codes (n=24,024)

- 0 = not paid OR not working
- 1 = in kind only
- 2 = mixed cash & in-kind
- 3 = cash only

### Optimal level of achievement

$WAGE_{optimal} = 3$

### Transformation to GAP score

$$\begin{aligned} GAP1_{wage} &= WAGE_{optimal} - WAGE_{actual} \\ &= 2 - WAGE_{actual} \end{aligned}$$



## **Health empowerment**

- In ENDES 2015, I identified a series of linked questions relating to women's agency in seeking healthcare. Similar questions have been used in assessing women's agency in healthcare seeking behaviour during the antenatal period in India (2).
- 487: *Ahora me gustaría hacerle algunas preguntas acerca de su salud, cuando Ud. se enferma y quiere recibir consejo o tratamiento médico, ¿Es para Ud. un gran problema:*
  1. *Saber a dónde ir?*
  2. *Conseguir permiso para ir?*
  3. *Conseguir dinero para el tratamiento?*
  4. *Irsola?*
  5. *Qué tal vez no haya personal de salud femenino?*

## **7. Healthcare knowledge**

- Some degree of healthcare literacy and knowledge is important for women in navigating the health system, and reflects a sense of community connection, awareness and knowledge beyond the individual household or family

**ENDES indicator:** Knows where to go to get healthcare (binary)

### **Questionnaire number**

487.1: *Saber a dónde ir?*

### **Data code**

V467: Are the following a problem when seeking medical care for yourself?  
*A Knows where to go*

### **Total responses**

N = 24,024

### **Missing responses**

N = 0

### **ENDES Coding**

0 No

1 Yes

### **Recoding**

1 No

0 Yes

### **Optimal level of achievement**

$HE_{\text{optimal}} = 1$

### **Transformation to GAP score**

$GAP1_{\text{health}} = HE_{\text{optimal}} - HE_{\text{actual}}$   
 $= 1 - HE_{\text{actual}}$

## 8. Health-seeking autonomy

- If a woman desired medical treatment, it was important for her to be able to do so in an autonomous manner, without a barrier of her husband or family members' permission.
- Within the healthcare system, some women were observed to be "without a voice" in that they would let their husband speak for them about their healthcare.
- In general, many women felt they were relatively autonomous in seeking healthcare, which reflected a more liberal social norm.
- At an individual level, this was reflective of gender norms operating within a family/household

**ENDES indicator:** Getting permission to go to healthcare (binary)

### Questionnaire number

487.2 *Conseguir permiso para ir?*

### Data code

V467: Are the following a problem when seeking medical care for yourself?

*B Getting permission to go*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

0 No

1 Yes

### Recoding

1 No

0 Yes

### Optimal level of achievement

$HE_{\text{optimal}} = 1$

### Transformation to GAP score

$$\begin{aligned} \text{GAP}_{1\text{health}} &= HE_{\text{optimal}} - HE_{\text{actual}} \\ &= 1 - HE_{\text{actual}} \end{aligned}$$

## 9. Financial security and healthcare

- In family units where some women may not have access to their own income, or where they may use their own income for communal purposes, the ability to have access to some form of financial support to seek healthcare when needed is of significant importance to women in the research population.

**ENDES indicator:** Getting money to for healthcare (binary)

### Questionnaire number

487.3 *Conseguir dinero para el tratamiento?*

### Data code

V467: Are the following a problem when seeking medical care for yourself?

*C Getting money for healthcare*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

0 No

1 Yes

### Recoding

1 No

0 Yes

### Optimal level of achievement

$HE_{\text{optimal}} = 1$

### Transformation to GAP score

$$\begin{aligned} \text{GAP1}_{\text{health}} &= HE_{\text{optimal}} - HE_{\text{actual}} \\ &= 1 - HE_{\text{actual}} \end{aligned}$$

## 10. Mobility and healthcare

- Women's capacity to attend healthcare was a reflection not only of permission and finances, but also of the capacity to travel outside the home and to healthcare facilities alone if necessary. This is linked to concepts of freedom of movement, as identified in gender indexes such as the SIGI.

**ENDES indicator:** Not wanting to go alone to health facility (binary)

### Questionnaire number

487.6 *Ir sola?*

### Data code

V467: Are the following a problem when seeking medical care for yourself?

*F Not wanting to go alone*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

0 No

1 Yes

### Recoding

1 No

0 Yes

### Optimal level of achievement

$HE_{\text{optimal}} = 1$

### Transformation to GAP score

$GAP1_{\text{health}} = HE_{\text{optimal}} - HE_{\text{actual}}$   
 $= 1 - HE_{\text{actual}}$

## 11. Gender sensitive health workforce

- At the healthcare system level, the availability of female and male healthcare providers was seen as an important aspect of gender and women's empowerment.
- Sexual and reproductive health services were seen as insensitive to population needs: in the LNR they were administered by male health providers (a disincentive for some women) and were only available to women aged over 18 making adolescent access to healthcare difficult.

**ENDES indicator:** No female health providers (binary)

### Questionnaire number

487.7 *Qué tal vez no haya personal de salud femenino?*

### Data code

V467: Are the following a problem when seeking medical care for yourself?

*G No female health providers*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

0 No

1 Yes

### Recoding

1 No

0 Yes

### Optimal level of achievement

$HE_{\text{optimal}} = 1$

### Transformation to GAP score

$$\begin{aligned} \text{GAP}_{1\text{health}} &= HE_{\text{optimal}} - HE_{\text{actual}} \\ &= 1 - HE_{\text{actual}} \end{aligned}$$

## Health access and family planning

### 12. Family planning use

- The most cited reason in my qualitative research for contraception use was to control family size and limit the financial burden of children on the family; this echoes macro-economic arguments around the positive economic impact of family planning. Unmet need for family planning can also be evaluated by assessing the number of women who do not desire a future pregnancy who are not currently using modern forms of contraception. (3)

**ENDES indicator:** Unmet need for family planning (binary; defined as the percentage of women who do not want to become pregnant but are not using contraception (3))

#### **Questionnaire number**

309 *¿Actualmente están Ud. o su pareja haciendo algo o usando algún método para postergar o evitar quedar embarazada?*

311 *¿Qué están haciendo o usando para evitar quedar embarazada?*

#### **Data code**

V624 *Unmet need for contraception*

#### **Total responses**

N = 24,024

#### **Missing responses**

N = 0

#### **Missing responses**

N = 0

#### **ENDES Coding**

0 Never had sex

1 Unmet need to space

2 Unmet need to limit

3 Using to space

4 Using to limit

5 Spacing failure

6 Limiting failure

7 Desire birth < 2 yrs

8 No sex, want to wait

9 Infecund, menopausal

99 don't know, didn't answer

#### **Recoding/creation of new category**

0 = Unmet need or failure (if V624==1,2,5,6 → recode to 0)

1 = Equivalence (If V624==0,8,9 → recode to 1)

2 = Appropriate, needs met (If V624==3,4,7 → recode to 2)

99 (n=124) Excluded

#### **Optimal level of achievement**

$UNMETC_{optimal} = 2$

#### **Transformation to GAP score**

$GAP1_{unmet} = UNMETC_{optimal} - UNMETC_{actual}$   
 $= 2 - UNMETC_{actual}$







### 13. Family planning knowledge

- Linked to the use of family planning is the ability of an individual to know what to use and where to go in order to obtain a method of family planning.
- Use of family planning reflects "...the ability of women to make their own decisions about their bodies in terms of reproductive and sexual health" (4).

**ENDES indicator:** knowledge of any method family planning (categorical: none, folkloric/traditional, modern)

#### Questionnaire number

309 *¿Actualmente están Ud. o su pareja haciendo algo o usando algún método para postergar o evitar quedar embarazada?*

328: *Sabe de lugar donde se pueda obtener un método de planificación familiar?*

#### Data code

V301 *Knowledge of any method of contraception*

#### Total responses

N = 24,024

#### Missing responses

N = 0

#### ENDES Coding

- 0 No knowledge
- 1 Knows only folkloric method
- 2 Knows only traditional method
- 3 Knows a modern method

#### Recoding/creation of new category

- 0 No knowledge (V301==0)
- 1 Knows only folkloric or traditional method (V301==1 or 2)
- 3 Knows a modern method (V301==2)

#### Optimal level of achievement

$CONTK_{\text{optimal}} = 2$

#### Transformation to GAP score

$$\begin{aligned} GAP1_{\text{contk}} &= CONTK_{\text{optimal}} - CONTK_{\text{actual}} \\ &= 2 - CONTK_{\text{actual}} \end{aligned}$$

#### 14. Access to family planning

- If a woman so desired, it is important for her to have knowledge of how to access family planning and where to access it if she needed. Although she may not chose to use a condom, the ability to negotiate the acquisition of a condom is highly important.

**ENDES indicator:** access to condom if necessary (binary)

##### Questionnaire number

524: *Si Ud. quisiera, ¿Usted misma podría conseguir un condón?*

##### Data code

V769: *Access to condom*

##### Total responses

N = 23,579

##### Missing responses

N = 445

Pattern of missingness explored

- Missing data not explained by current contraception use (v312)
- Missing data not explained by currently pregnant (v213)
- Missing data not explained by knowledge of modern form of contraception (v301)
- Missing data not explained by age/ethnicity/wealth

##### ENDES Coding

0 No

1 Yes

8 Don't know, n=475

##### Recoding/creation of new category

0 No or "don't know" (V769==0 or ==8)

1 Yes

##### Optimal level of achievement

$COND_{optimal} = 1$

##### Transformation to GAP score

$GAP1_{cond} = COND_{optimal} - COND_{actual}$   
 $= 1 - COND_{actual}$

## 15. Healthcare access

- This lack of voice was further accentuated when *ribereños* came to Iquitos to seek healthcare.
- In decisions on healthcare, layered power imbalances accumulated in many women from rural areas being severely disadvantaged
- **Access to healthcare** represented an intersection of gender, wealth, ethnicity, geography

**ENDES indicator:** Visit to health facility in last 12 months (binary)

### Questionnaire number

331: *En los ultimos 12 meses, ha tenido alguna consulta para el cuidado de salud?*

### Data code

V394: *Healthcare facility attendance in last 12 months*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

0 No

1 Yes

### Recoding/creation of new category

Nil

### Optimal level of achievement

CLINIC<sub>optimal</sub> = 1

### Transformation to GAP score

$$\begin{aligned}\text{GAP}_{1\text{-clinic}} &= \text{CLINIC}_{\text{optimal}} - \text{CLINIC}_{\text{actual}} \\ &= 1 - \text{CLINIC}_{\text{actual}}\end{aligned}$$

## 16. Health insurance

- All Peruvians should be covered by some form of health insurance. Those who are poorest are covered by SIS, Seguro Integral de Salud. Others who are government workers are covered by Essauld. Professionals normally seek private health insurance.
- In some of the more marginalised communities, individuals did not hold identification or health insurance, and mainly this seemed to be a reflection of lack of ability/capacity to navigate the social services system (especially a reflection of geography and poverty).
- Holding health insurance therefore reflects some form of individual agency to seek coverage and navigate social services, and/or the

**ENDES indicator:** Coverage by health insurance (binary)

### Questionnaire number

229B ¿Tiene Ud. seguro de salud?

### Data code

*V481 Covered by health insurance*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

0 No

1 Yes

### Recoding/creation of new category

Nil

### Optimal level of achievement

$INSURE_{optimal} = 1$

### Transformation to GAP score

$$\begin{aligned} GAP_{insurance} &= INSURE_{optimal} - INSURE_{actual} \\ &= 1 - INSURE_{actual} \end{aligned}$$

## Age, maturity and relationships

### 17. Age at first marriage

- Participants identified the importance of maturity when entering into life partnerships or children. Many women retrospectively did not feel mature enough and felt their relationship quality and empowerment subsequently suffered
- Furthermore, educational and employment opportunities for women (less so for men) were limited by young marriage and childbirth. These could be linked conceptually to domestic responsibilities and access to and use of contraception.

**ENDES indicator:** Age at first marriage (binary, <20 years cut-off)

#### **Questionnaire number**

510 *¿Cuántos años tenía Ud. cuando empezó a vivir con él?*

#### **Data code**

V511 *Age at first cohabitation*

#### **Total responses**

N = 24,024

#### **Missing responses**

N = 0

#### **ENDES Coding**

Continuous variable, whole integers

#### **Recoding/creation of new category**

Transformed to:

0 = <20 years first marriage

1 = >20 years first marriage

#### **Optimal level of achievement**

$AGEM_{\text{optimal}} = 1$

#### **Transformation to GAP score**

$GAP1_{\text{ageM}} = AGEM_{\text{optimal}} - AGEM_{\text{actual}}$   
 $= 1 - AGEM_{\text{actual}}$

## 18. Age at first intercourse

- It was reported that many men and women initiate sex at a young age, with hearsay evidence of girls as young as 11 or 12 years of age falling pregnant
- Furthermore, educational and employment opportunities for women (less so for men) were limited by young marriage and childbirth. These could be linked conceptually to domestic responsibilities and access to and use of contraception.
- A general consensus that pregnancy and marriage were desirable after 20 years of age
- It was more or less normal to commence sexual activity around the age of 15 or 16, which is consistent with the age at which individuals develop Gillick Competence prior to becoming recognised as adults (5)

**ENDES indicator:** Age at first intercourse (binary, <15 years cut-off)

### Questionnaire number

512 *¿Cuántos años tenía Ud. cuando tuvo su primera relación sexual (si ha tenido)?*

### Data code

V525 *Age at first sexual experience*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

Continuous variable, whole integers

0 = has not had sex (n=0 in partnered population of women)

96 = at first union (n=198)

97 = inconsistent (n=0)

98 = don't know (n=0)

### Recoding/creation of new category

Calculation of n=198 "at first union" age of first intercourse from V511 above

All data then transformed to:

0 = <15 years first sexual intercourse

1 = >15 years first sexual intercourse

### Optimal level of achievement

$AGEI_{\text{optimal}} = 1$

### Transformation to GAP score

$GAP1_{\text{ageI}} = AGEI_{\text{optimal}} - AGEI_{\text{actual}}$   
 $= 1 - AGEI_{\text{actual}}$

### **19-23. Permissive attitudes to wife beating**

- This series of five questions involve a consideration of attitudes against wife beating.
- Familial transmission of violent behaviour meaning that attitudes are important
- Communication between spouses was also positioned as protection
- On the whole, many people recognised that violence was a problem and were against it
- Importance of intra-household norms and role models in promoting anti-violent behaviours
- Beyond communication, education around human rights and use of human rights concepts and language are a means to protect and prevent VAW
- Problem of under-reporting and not denouncing violence
- Machismo/marianismo and the promulgation of violence

#### **Questionnaire number**

721: *A veces el esposo/compañero se molesta por cosas que hace su esposa. En su opinión, Ud. está de acuerdo que él golpee a su esposa....*

a. ... *¿Si ella sale de la casa sin decirle nada a él?*

b. ... *¿Si ella descuida a los niños?*

c. ... *¿Si ella discute con él?*

d. ... *¿Si ella se niega a tener relaciones sexuales con él?*

e. ... *¿Si ella quema la comida?*

#### **Data codes**

V744 A *Wife beating justified if she goes out without telling him*

V744 B *Wife beating justified if she neglects the children*

V744 C *Wife beating justified if she argues with him*

V744 D *Wife beating justified if she refuses to have sex*

V744 E *Wife beating justified if she burns the food*

#### **Total responses**

N = 24,024

#### **Missing responses**

N = 0

#### **ENDES Coding**

0 No

1 Yes

8 Don't know (n=27)

#### **Recoding/creation of new category**

Transformed to:

0 = permissive of violence (V744==1 or V744==8)

1 = against violence(no)

#### **Optimal level of achievement**

WBJ<sub>optimal</sub> = 1

**Transformation to GAP score**

$$\begin{aligned} \text{GAP}_{1-\text{wbj}} &= \text{WBJ}_{\text{optimal}} - \text{WBJ}_{\text{actual}} \\ &= 1 - \text{WBJ}_{\text{actual}} \end{aligned}$$



## **G.2: GE SCORE**

### **Partner differences**

#### **1. Difference in education**

- Educational and employment opportunities for women (less so for men) were limited by young marriage and childbirth
- Power imbalances within a relationship seemed to be driven by money and status, which in turn was a reflection of employment and education.
- Many women recognised that they had less education than their spouse

**ENDES indicator:** Difference in educational attainment (categorical; difference in highest level of schooling achieved between individual woman and her partner)

#### **Questionnaire number**

703: ¿Su esposo/compañero (su último esposo/compañero) alguna vez asistió a la escuela?

704: ¿Cuál fue el año o grado de estudios más alto que aprobó?

#### **Data code**

*V149: female educational attainment*

*V729: partner educational attainment*

#### **Total responses**

N = 24,020

#### **Missing responses**

N = 4

#### **ENDES Coding**

0 No education

1 Incomplete primary

2 Complete primary

3 Incomplete secondary

4 Complete secondary

5 Higher

9 unsure (n=6)

#### **Recoding/creation of new category**

Missing/unsure, n=10

#### **Transformation to GAP score**

$GAP2_{edu} = EDU_{partner} - EDU_{individual}$

## 2. Difference in employment

- Women were more likely to be unemployed or housewives than their male partners.
- Importance of work to individual identity, regardless of type of labour

**ENDES indicator:** difference in work status between partners (difference in ordinal, categorical scores)

### Questionnaire number

706 ¿Cuál es la ocupación de su esposo/compañero? Es decir, ¿qué clase de trabajo hace él principalmente?

### Data code

*V714 female participant working*

*V705 partner's occupation*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

0 = not working

1 = working

9 = don't know, didn't answer

### Recoding/creation of new category

Excluded: 9 = don't know, didn't answer (n=9)

New coding: 0 = not working / 1 = working

### Transformation to GAP score

$$\text{GAP2}_{\text{work}} = \text{WORK}_{\text{partner}} - \text{WORK}_{\text{individual}}$$

### 3. Difference in vulnerable employment

- Women were more likely to work informal or multiple jobs compared to men
- Greater job insecurity because of this
- Less valuation of women's role in the formal and informal sectors

**ENDES indicator:** difference in vulnerable employment (categorical; the difference in vulnerable employment status between individual woman and her partner)

#### Questionnaire number

706 ¿Cuál es la ocupación de su esposo/compañero? Es decir, ¿qué clase de trabajo hace él principalmente?

#### Data code

*V717 female's occupation*

*V705 partner's occupation*

#### Total responses

N = 24,024

#### Missing responses

N = 0

#### ENDES Coding

- 0 Did not work
- 1 Professional, Technical, Managerial
- 2 Clerical
- 3 Sales
- 4 Agricultural/self-employed
- 5 Agricultural/employee
- 6 Household & domestic
- 7 Services
- 8 Skilled manual
- 9 Unskilled manual

#### Recoding/creation of new category

- 0 = not working
- 1 = vulnerable employment
- 2 = stable employment

#### Transformation to GAP score

$$GAP2_{vul} = VUL_{partner} - VUL_{individual}$$

#### 4. Age difference between partners

- Spousal age differences of up to 30 years were observed, with significant impact on intra-relationship power
- It was commonplace to see younger women with older men (and not normally vice versa)
- Younger women (teens and young adults) seen to partner with older (middle aged) men

**ENDES indicator:** Age difference between partners (cut-off > 10 year's age difference)

##### **Questionnaire number**

702 ¿Cuántos años cumplidos tiene su esposo/compañero?

##### **Data code**

*V730 partner's age*

*V012 respondent's age*

##### **Total responses**

N = 24,024

##### **Missing responses**

N = 0

##### **ENDES Coding**

Continuous (years of age)

##### **Recoding/creation of new category**

Age difference = male (V730) – female (V012)

Transformed to:

0 = >10 years difference

1 = <10 years difference

##### **Transformation to GAP score**

$GAP2_{vul} = VUL_{partner} - VUL_{individual}$

## 5. Earning differential

- Despite relatively 'equal' working roles in the rural context, when delving into wages, it seems men were sometimes paid more than women
- Difference in the amount of money earned led to power differentials in the relationship
- Lack of one's 'own money' to spend was linked to lack of ability to seek care or support outside of the house, for example in situations of domestic violence or when seeking healthcare

**ENDES indicator:** Do you earn more, less or the same as your partner?  
(categorical: more, less, the same, don't know)

### Questionnaire number

718A: ¿Diría que el dinero que Usted gana es más, menos o igual de lo que gana su esposo/compañero?

### Data code

*V746 Participant earns more than partner*

### Total responses

N = 11,625

### Missing responses

N = 12,399

Explained by:

N=9,692 where participant is not currently working (V714==0)

N=2,707 remained unanswered

Of those 2,707 missing:

A total of 2,279 partners earn the same

- 2 cases where both partners unemployed (V717 & V705==0) → earn the same
- 11 cases where both partners in professional/managerial work (V717 & V705==1) → earn the same
- 6 cases where both partners in clerical work (V717 & V705==2) → earn the same
- 86 cases where both partners in sales (V717 & V705==3) → earn the same
- 1,969 cases where both interviewee and her partner were in agricultural, self-employed labour (V717 & V705==4) → earn the same
- 2 cases where both partners in domestic services (V717 & V705==6) → earn the same
- 57 cases where both partners in skilled manual labour (V717 & V705==8) → earn the same
- 9 cases where both partners in unskilled manual labour (V717 & V705==3) → earn the same
- 50 cases where V705==4 and V717==6 or 9 → earn approx. the same

- 12 cases where V705==6 and V717==4 → earn approx. the same
- 4 cases where V705==7 and V717==8 → earn approx. the same
- 3 cases where V705==8 and V717==7 → earn approx. the same
- 68 cases where V705==9 and V717==4 or 6 → earn approx. the same

A total of 140 where female earns more than male partner

- 11 cases where V717==1 and V705!=1 or 0
- 3 cases where V717==2 and V705!=1 or 0 or 2
- 107 cases V717==3 and V705!=1 or 0 or 2 or 3
- 14 cases V717==8 and V705==4,5,6 or 9 & V705!=1 or 0 or 2 or 3
- 5 cases V717==7 and V705==4,5,6 or 9 & V705!=1 or 0 or 2 or 3
- 0 cases where V717>1 and V705==0

A total of 288 where female earns less than male partner

- 77 cases where V705==1 and V717!=1
- 32 cases where V705==2 and V717!=1 or 2
- 31 cases V705==3 and V717!=1 or 2 or 3
- 82 cases V705==8 and V717==4,5,6 or 9 & V705!=1 or 0 or 2 or 3
- 61 cases V705==7 and V717==4,5,6 or 9 & V705!=1 or 0 or 2 or 3
- 5 cases where V705>1 and V717==0

The above workings based on the Peruvian National Classification of Occupations 2015 (1) defines a hierarchy of four key levels of employment competency:

1. Simple and routine physical or manual tasks.
2. Performance of tasks such as handling of machinery and electronic equipment, driving vehicles, maintenance and repair of electrical and mechanical equipment, and handling, ordering and storage of data and other forms of information.
3. Complex technical tasks and practices that require extensive and extensive practical, technical and procedural skills in a specialised work environment.
4. Ability to solve complex problems, make decisions and act creatively based on a vast body of theoretical and practical knowledge about a specialised field.

#### **ENDES Coding**

- 1 More than him
- 2 Less than him
- 3 About the same
- 4 Partner doesn't bring in money
- 5 Don't know

#### **Recoding/creation of new category**

N=9,692 where participant is not currently working (V714==0)

V714==0 & V705==0 (n=126) → transformed to 3 “about the same”  
 V714==0 & V705!=0, n=9,566 → transformed to 2 “less than him”

Of those 2,707 missing:

A total of 2,279 partners earn the same → transformed to 3 “about the same”

- 2 cases where both partners unemployed (V717 & V705==0) → transformed to 3 “about the same”
- 11 cases where both partners in professional/managerial work (V717 & V705==1) → transformed to 3 “about the same”
- 6 cases where both partners in clerical work (V717 & V705==2) → transformed to 3 “about the same”
- 86 cases where both partners in sales (V717 & V705==3) → transformed to 3 “about the same”
- 1,969 cases where both interviewee and her partner were in agricultural, self-employed labour (V717 & V705==4) → transformed to 3 “about the same”
- 2 cases where both partners in domestic services (V717 & V705==6) → transformed to 3 “about the same”
- 57 cases where both partners in skilled manual labour (V717 & V705==8) → transformed to 3 “about the same”
- 9 cases where both partners in unskilled manual labour (V717 & V705==3) → transformed to 3 “about the same”
- 50 cases where V705==4 and V717==6 or 9 → transformed to 3 “about the same”
- 12 cases where V705==6 and V717==4 → transformed to 3 “about the same”
- 4 cases where V705==7 and V717==8 → transformed to 3 “about the same”
- 3 cases where V705==8 and V717==7 → transformed to 3 “about the same”
- 68 cases where V705==9 and V717==4 or 6 → transformed to 3 “about the same”

A total of 140 where female earns more than male partner → transformed to 1 “more than him”

- 11 cases where V717==1 and V705!=1 or 0 → transformed to 1 “more than him”
- 3 cases where V717==2 and V705!=1 or 0 or 2 → transformed to 1 “more than him”
- 107 cases V717==3 and V705!=1 or 0 or 2 or 3 → transformed to 1 “more than him”
- 14 cases V717==8 and V705==4,5,6 or 9 & V705!=1 or 0 or 2 or 3 → transformed to 1 “more than him”
- 5 cases V717==7 and V705==4,5,6 or 9 & V705!=1 or 0 or 2 or 3 → transformed to 1 “more than him”
- 0 cases where V717>1 and V705==0 → transformed to 1 “more than him”

A total of 288 where female earns less than male partner → transformed to 2 “less than him”

- 77 cases where  $V705==1$  and  $V717!=1$  → transformed to 2 “less than him”
- 32 cases where  $V705==2$  and  $V717!=1$  or 2 → transformed to 2 “less than him”
- 31 cases  $V705==3$  and  $V717!=1$  or 2 or 3 → transformed to 2 “less than him”
- 82 cases  $V705==8$  and  $V717==4,5,6$  or 9 &  $V705!=1$  or 0 or 2 or 3 → transformed to 2 “less than him”
- 61 cases  $V705==7$  and  $V717==4,5,6$  or 9 &  $V705!=1$  or 0 or 2 or 3
- 5 cases where  $V705>1$  and  $V717==0$  → transformed to 2 “less than him”

#### **Transformation to GAP score**

1 = male earns more (2) OR individual participant does not work  
( $V731==0$ )  
0 = equality (3)  
-1 = female earns more (1,4)  
(5 => excluded)



## **Decision Making**

### **6. Decision making, contraception use**

**ENDES indicator:** Decision making, contraception use (categorical; partner, joint, individual)

#### **Questionnaire number**

352D: ¿Quién decidió que usted usara el método que actualmente está usando?

#### **Data code**

*V632 Decision maker for contraception*

#### **Total responses**

N = 18,386

#### **Missing responses**

N = 5,638

Of the missing responses

- Currently not using (V312==0), n = 5,270
- Husband does not know respondent is using contraception (V634==0), n=323
- Respondent doesn't know if husband knows she is using contraception or not (V634==8), n=25
- No response to the question of if husband knows she is using contraception or not (V634==9), n=20

#### **ENDES Coding**

- 1 Mainly respondent
- 2 Mainly husband, partner
- 3 Joint decision
- 6 Other

#### **Recoding/creation of new category**

Of the missing responses

- Currently not using (V312==0), n = 5,270 → recode to 0 "equivalent"
- Husband does not know respondent is using contraception (V634==0), n=323 → recode to -1 "female dominant decision"
- Respondent doesn't know if husband knows she is using contraception or not (V634==8), n=25 → recode to -1 "female dominant decision"
- No response to the question of if husband knows she is using contraception or not (V634==9), n=20 → recode to -1 "female dominant decision"

1 = male dominant decision

0 = joint decision

-1 = female dominant decision

(6 => excluded)

#### **Transformation to GAP score**

$GAP2_{dmc}$  = 1 if male dominant  
= 0 if joint/equivalence  
= -1 if female dominant

## 7. Decision making

**ENDES indicator:** Healthcare (categorical; partner, joint, individual)  
What to do with husband's money (categorical; partner, joint, individual)  
Large household purchases (categorical; partner, joint, individual)  
Small household purchases (categorical; partner, joint, individual)  
Visits to family (categorical; partner, joint, individual)  
Food to cook (categorical; partner, joint, individual)

### Questionnaire number

719: *En su hogar, quién tiene la última palabra en las siguientes decisiones:*

- a. *¿El cuidado de su salud?.....*
- b. *¿Hacer compras grandes del hogar?.....*
- c. *¿Hacer compras para necesidades diarias del hogar?.....*
- d. *¿Visitar a familia, amigos, o parientes?.....*
- e. *¿Qué comida se debe cocinar cada día?.....*

### Data code

V743A *Final say on own health care*

### Total responses

N = 24,024

### Missing responses

N = 0

### ENDES Coding

Continuous (years of age)

### Recoding/creation of new category

Transformed to:

1 = male dominant decision

0 = joint decision

-1 = female dominant decision

(0, 3, 5 => excluded, n=10)

### Transformation to GAP score

GAP2<sub>dm</sub> = 1 if male dominant  
= 0 if joint  
= -1 if female dominant

## **Violence against women**

**ENDES indicator:** VAW control  
VAW emotional  
VAW physical minor  
VAW physical major  
VAW sexual

### **Data codes**

D102 *Number of control issues with spouse*

D104 *Emotional violence*

D106 *Less severe violence*

D107 *Severe violence*

D108 *Sexual violence*

### **ENDES questionnaire codes**

#### **8. Control issues identified with partner (ordinal)**

1002: Cuando dos personas se casan o viven juntas, ellos usualmente comparten los buenos y los malos momentos. En su relación con su (último) esposo (compañero):  
SI LA RESPUESTA ES SI, SONDEE: ¿Frecuentemente o a veces?  
*¿Podría usted decirme si él es (era) cariñoso con usted?*  
*¿Podría usted decirme si él pasa (pasaba) su tiempo libre con Usted?*  
*¿Podría usted decirme si él consulta (consultaba) su opinión en diferentes temas del hogar?*  
*¿Podría usted decirme si él respeta (respetaba) sus deseos?*  
*¿Podría usted decirme si él respeta (respetaba) sus derechos?*  
*Ahora voy a preguntarle sobre situaciones por las que pasan algunas mujeres.*

1003: Por favor dígame si las siguientes frases se aplican a la relación con su (último)esposo (compañero):  
*¿Su esposo (compañero) se pone (ponía) celoso o molesto si usted conversa (conversaba) con otro hombre?*  
*¿El la acusa (acusaba) frecuentemente de ser infiel?*  
*¿El le impide (impedía) que visite o la visiten sus amistades?*  
*¿El trata (trataba) de limitar las visitas/contactos a su familia?*  
*¿El insiste (insistía) siempre en saber todos los lugares donde usted va (iba)?*  
*¿El desconfía (desconfiaba) de usted con el dinero?*

#### **9. Experience of emotional violence with partner (binary)**

1004A-C *¿Le ha dicho o le ha hecho cosas para humillarla delante de los demás?*  
*¿La ha amenazado con hacerle daño a usted o a alguien cercano a usted?*  
*¿La ha amenazado con irse de la casa, quitarle a los hijos o la ayuda económica?*

#### **10. Experience of minor physical violence with partner (binary)**

1005A-C *¿La empujó, sacudió o le tiró algo?*  
*¿La abofeteó o le retorció el brazo?*  
*¿La golpeó con el puño o con algo que pudo hacerle daño?*

#### **11. Experience of major physical violence with partner (binary)**

1005D-G *¿La ha pateado o arrastrado?*  
*¿Trató de estrangularla o quemarla?*

*¿La atacó/agredió con un cuchillo, pistola u otro tipo de arma?*  
*¿La amenazó con un cuchillo, pistola u otro tipo de arma?*

12. Experience of sexual violence with partner (binary)  
 1005H-I      *¿Ha utilizado la fuerza física para obligarla a tener relaciones sexuales aunque usted no quería?*  
                  *¿La obligó a realizar actos sexuales que usted no aprueba?*

## Violence against women – all questions

### Total responses

N = 20,063

### Missing responses

N = 3,961

*Not selected (V044==0), n=3,913*

*Selected by privacy not possible (V044==2), n=47*

*Selected but interview not complete (V044==3), n=1*

**Selection for the domestic violence module:** The violence section is only applied to one woman in the home. To select the woman to be interviewed, a random number table is used, which is part of the household questionnaire (ENDES Technical Manual, Section VI) (6)

### Dealing with missing data in this group of indicators (relevant to WAGE score overall)

- Selection of only one woman per household for WAGE Score
- Ensures no missing-ness in VAW questions
- Also overcomes any household-level issues with clustering

### ENDES Coding

Pre-existing codes:

0= no

1 = yes

### Recoding/creation of new category

0= yes

1 = no

### Transformation to GAP score

$$\begin{aligned} \text{GAP2}_{\text{VAW}} &= \text{VAW}_{\text{actual}} - \text{VAW}_{\text{optimal}} \\ &= \text{VAW}_{\text{actual}} - 0 \end{aligned}$$

## APPENDIX H: Chapter-by-Chapter Construction of the WAGE Score

### CHAPTER 2: RESULTS OF LITERATURE REVIEW

DOMAIN	Content of current international, aggregate-level indices
Education	<ul style="list-style-type: none"> <li>Adult literacy rates/ratio (GEI, GEIE, GGGI, WEOI)</li> <li>Gender parity index (primary, secondary, tertiary) (GEI, GEIE, GGGI, MDG)</li> <li>Secondary education rates (GII)</li> <li>Attitudes to female education (GEIE)</li> <li>Women's school life expectancy (WEOI)</li> </ul>
Labour	<ul style="list-style-type: none"> <li>Labour force participation rate/ratio (MDG, GII, GEI, GEIE, GGGI)</li> <li>Income/wage: absolute, gap, control over (WEAI, GEI, GEIE, GGGI, WEOI)</li> <li>Attitudes to employment (GEIE)</li> <li>Females in professional jobs (GGGI, GEIE)</li> <li>Employment discrimination (WEOI)</li> <li>Legal restrictions on job types for women (WEOI)</li> <li>Difference between statutory retirement age between men and women (WEOI)</li> </ul>
Family sphere and domestic labour	<ul style="list-style-type: none"> <li>Time use (WEAI)</li> <li>Discriminatory family code:</li> <li>Legal age at marriage (SIGI)</li> <li>Early marriage (SIGI)</li> <li>Parental authority (SIGI)</li> <li>Son bias:</li> <li>Missing women (SIGI)</li> <li>Fertility preferences (SIGI)</li> <li>Childcare services (WEOI)</li> <li>Maternity and paternity leave and provision (WEOI)</li> </ul>
Decision-making	<ul style="list-style-type: none"> <li>Access to and decisions on credit (WEAI)</li> <li>Input in productive decisions (WEAI)</li> <li>Autonomy in production (WEAI)</li> </ul>
Financial empowerment	<ul style="list-style-type: none"> <li>Economic rights rating (GEIE)</li> <li>Inheritance (SIGI)</li> <li>Access to land (SIGI)</li> <li>Access to credit (SIGI)</li> <li>Access to property (SIGI)</li> <li>Control over income (WEAI)</li> <li>Access to credit or finance (WEAI)</li> </ul>
Property, assets and ownership	<ul style="list-style-type: none"> <li>Property ownership rights (WEOI)</li> <li>Mobile phone subscriptions (WEOI)</li> <li>Ownership of assets (WEAI)</li> <li>Purchase, sale or transfer of assets (WEAI)</li> <li>Access to and decisions on credit (WEAI)</li> </ul>
Community participation	<ul style="list-style-type: none"> <li>Group membership (WEAI)</li> <li>Speaking in public (WEAI)</li> </ul>
Leadership and political representation <sup>a</sup>	<ul style="list-style-type: none"> <li>Proportion women in national parliament (GGGI)</li> <li>Female head of state over 50 years (GGGI)</li> <li>Attitudes to female politicians (GEIE)</li> <li>Percentage of female legislators, managers, senior officials (GEIE)</li> <li>Technical employment and managerial roles (GEI)</li> </ul>
Health	<ul style="list-style-type: none"> <li>MMR (GII, SIGI)</li> <li>AFR (GII, WEOI)</li> <li>Female to male mortality rate ratio (GEIE)</li> <li>HIV (SIGI)</li> </ul>
Family planning	<ul style="list-style-type: none"> <li>Fertility preferences (SIGI)</li> </ul>
VAW	<ul style="list-style-type: none"> <li>Rate of VAW (SIGI)</li> </ul>
Age and power	
Traditional customs	<ul style="list-style-type: none"> <li>Attitude to existence of traditional customs (GEIE)</li> <li>Rate of FGM (SIGI)</li> </ul>
Freedom of movement	<ul style="list-style-type: none"> <li>Access to public space (SIGI)</li> <li>Freedom of movement for women (WEOI)</li> </ul>

## CHAPTER 3: RESULTS OF QUALITATIVE RESEARCH

DOMAIN	Content of current international, aggregate-level indices
Education	<ul style="list-style-type: none"> <li>• Adult literacy rates/ratio (GEI, GEIE, GGGI, WEOI)</li> <li>• Gender parity index (primary, secondary, tertiary) (GEI, GEIE, GGGI, MDG)</li> <li>• Secondary education rates (GII)</li> <li>• Attitudes to female education (GEIE)</li> <li>• Women's school life expectancy (WEOI)</li> </ul>
Labour	<ul style="list-style-type: none"> <li>• Labour force participation rate/ratio (MDG, GII, GEI, GEIE, GGGI)</li> <li>• Income/wage: absolute, gap, control over (WEAI, GEI, GEIE, GGGI, WEOI)</li> <li>• Attitudes to employment (GEIE)</li> <li>• Females in professional jobs (GGGI, GEIE)</li> <li>• Employment discrimination (WEOI)</li> <li>• Legal restrictions on job types for women (WEOI)</li> <li>• Difference between statutory retirement age between men and women (WEOI)</li> </ul>
Family sphere and domestic labour	<ul style="list-style-type: none"> <li>• Time use (WEAI)</li> <li>• Discriminatory family code:</li> <li>• Legal age at marriage (SIGI)</li> <li>• Early marriage (SIGI)</li> <li>• Parental authority (SIGI)</li> <li>• Son bias:</li> <li>• Missing women (SIGI)</li> <li>• Fertility preferences (SIGI)</li> <li>• Childcare services (WEOI)</li> <li>• Maternity and paternity leave and provision (WEOI)</li> </ul>
Decision-making	<ul style="list-style-type: none"> <li>• Access to and decisions on credit (WEAI)</li> <li>• Input in productive decisions (WEAI)</li> <li>• Autonomy in production (WEAI)</li> </ul>
Financial empowerment	<ul style="list-style-type: none"> <li>• Economic rights rating (GEIE)</li> <li>• Inheritance (SIGI)</li> <li>• Access to land (SIGI)</li> <li>• Access to credit (SIGI)</li> <li>• Access to property (SIGI)</li> <li>• Control over income (WEAI)</li> <li>• Access to credit or finance (WEAI)</li> </ul>
Property, assets and ownership	<ul style="list-style-type: none"> <li>• Property ownership rights (WEOI)</li> <li>• Mobile phone subscriptions (WEOI)</li> </ul>

### Potential items emerging from qualitative interviews

**Literacy** – necessary for basic life functions such as trading, housekeeping

**Primary education** – generally available and accessible for both genders, although historically less available

**Secondary education** – important foundation for secure employment. However, school drop-out rates high especially in young women (partners, pregnancy) and those from the jungle (economic, geographical reasons)

**Tertiary education** – highly respected education level, mainly achieved by those in the city. Offers more job security, but unemployment rates still high

**Strong working mentality:** work linked to personal identity/pride

**Gendered labour roles** define career intentions and earning potential. Even in the jungle where agricultural roles were dominant, women and men fulfilled different roles and these were valued differently

**Work opportunities** and employment differ between men and women, often due to burden of family and domestic responsibilities

**Wage discrepancies** between men and women reflected by different earnings for same work, or gender difference of labour roles

**Financial empowerment** came from secure employment; financial security was highly valued

**Importance of family unit** to Peruvian culture. The family unit was where gender roles were replicated, and where cultural stereotypes of machismo, pater familias and marianismo were identified.

**Burden of domestic labour** fell on women/girls, women's roles were linked to domestic duties. This restricted earning potential and financial/job security

**Domestic labour** undervalued economically and socially

**Head of household** reflected intra-household power structure and gender norms, and in turn influenced the decision process

**Decision making processes** between couples was a reflection of individual power and agency, as well as the capacity to negotiate (give and take)

**Communication** between partners and the process of decision-making itself was important

**Decisions in context of resource shortage** - locally relevant decisions and purchases, including limited food, limited capacity to travel, limited range of items to purchase

**Healthcare decision making** was often linked to women's role as caregiver

**Financial empowerment** closely linked to safe employment, seen as a strong life goal. Women often seen as being in more precarious financial positions by over-reliance on male partner, dropping out of school or paid workforce for children, or through lower earning capacity

**Control over own earnings** was linked to whether the individual was given their own wage or relied on others. This was also linked to decision-making, and power within a partnership

**Access to credit or bank accounts** was very limited in both populations, with many not having or using a bank account in the region. Especially in those from rural areas.

**House ownership** was valued, consistent with the value placed on financial and job security and the value of the family unit.

Community participation	<ul style="list-style-type: none"> <li>• Ownership of assets (WEAI)</li> <li>• Purchase, sale or transfer of assets (WEAI)</li> <li>• Access to and decisions on credit (WEAI)</li> </ul>	<p><b>Mobile phones</b> used by both men and women in the city, but in rural areas where resources were shorter, usually only one phone was owned per household and this was normally controlled by the male</p> <p><b>Access to credit or bank accounts</b> was very limited in both populations, with many not having or using a bank account in the region. Especially in those from rural areas.</p> <p><b>Community groups</b> were highly important for individual and collective empowerment, and the presence of groups and support networks were observed in both urban and rural settings</p> <p><b>Community meetings</b> reflected participation and decision making at community level</p> <p><b>Voice and power</b> expressed by men and women during these meetings and in these groups reflected gender roles and power dynamics</p>
Leadership and political representation^	<ul style="list-style-type: none"> <li>• Proportion women in national parliament (GGGI)</li> <li>• Female head of state over 50 years (GGGI)</li> <li>• Attitudes to female politicians (GEIE)</li> <li>• Percentage of female legislators, managers, senior officials (GEIE)</li> <li>• Technical employment and managerial roles (GEI)</li> </ul>	<p><b>Local political structure</b> was highly gendered, with many realising men held many formal positions of power. Many express the desire to see more female leaders due to perceived positive gender traits.</p> <p><b>Leadership opportunities</b> were limited, but were conceptualised as being important for personal empowerment and to ‘bring up’ and empower others</p>
Health	<ul style="list-style-type: none"> <li>• MMR (GII, SIGI)</li> <li>• AFR (GII, WEOI)</li> <li>• Female to male mortality rate ratio (GEIE)</li> <li>• HIV (SIGI)</li> </ul>	<p><b>Perception of equality in leadership</b></p> <p><b>Healthcare decisions</b> reflect empowerment and communication around healthcare</p> <p><b>Access to healthcare</b> represented an intersection of gender, wealth, ethnicity, geography</p> <p><b>Health outcomes</b> were a reflection of gendered inequalities, mainly at a structural level, but also through individual gender dynamics</p>
Family planning	<ul style="list-style-type: none"> <li>• Fertility preferences (SIGI)</li> </ul>	<p><b>Access to family planning</b> reflect systemic and structural barriers to access and use</p> <p><b>Knowledge and education</b> were important to empower women and men to use certain techniques correctly</p> <p><b>Use of modern family planning</b> was a result of access and knowledge; thus, women’s control over their own body and fertility preferences reflected a process of empowerment</p> <p><b>Communication in partnerships</b> around contraceptive options was a way to explore power dynamics and negotiation, decision making</p>
VAW	<ul style="list-style-type: none"> <li>• Rate of VAW (SIGI)</li> </ul>	<p><b>Prevalence of VAW</b> – personal experiences of violence or community-level prevalence</p> <p><b>Attitudes to VAW</b> – although many disagreed with violence against women, there remained a permissive cultural context allowing high rates of violence to continue.</p>
Age and power	<ul style="list-style-type: none"> <li>• Nil</li> </ul>	<p><b>Programmes and prevention</b> of VAW were mainly focused in urban areas</p> <p><b>Marriage or pregnancy &lt;18 years of age</b> – reflects sub-optimal life maturity and impact on life opportunities</p> <p><b>Age differentials</b> in a partnership where men are older and women are younger were commonplace in both contexts</p>
Traditional customs	<ul style="list-style-type: none"> <li>• Attitude to existence of traditional customs (GEIE)</li> <li>• Rate of FGM (SIGI)</li> </ul>	<p>Although traditional customs still existed in some rural areas, there were no harmful cultural practices such as FGM</p>
Freedom of movement	<ul style="list-style-type: none"> <li>• Access to public space (SIGI)</li> <li>• Freedom of movement for women (WEOI)</li> </ul>	<p>On the whole, there were no explicit limitations on personal movement, with many women engaging in activities in public spaces</p>



## CHAPTER 4: RESULTS OF COGNITIVE INTERVIEW VALIDATION

DOMAIN	Content of current international, aggregate indices	Potential indicators emerging from qualitative interviews	ENDES 2015 Items Area	Questionnaire wording	Validation of items through cognitive interviews
Education	<ul style="list-style-type: none"> <li>Adult literacy rates/ratio (GEI, GEIE, GGGI, WEOI)</li> <li>Gender parity index (primary, secondary, tertiary) (GEI, GEIE, GGGI, MDG)</li> <li>Secondary education rates (GII)</li> <li>Attitudes to female education (GEIE)</li> </ul> <p>Women's school life expectancy (WEOI)</p>	<p><b>Literacy</b> – for basic transactions</p> <p><b>Primary education</b> – generally available and accessible for both genders</p> <p><b>Secondary education</b> – important foundation for employment, school drop-out rates high</p> <p><b>Tertiary education</b> – high respect and security</p>	<p>School attendance</p> <p>Educational attainment</p> <p>Literacy</p>	<p><i>Have you ever attended school?</i></p> <p><i>What is the highest level of school you attended? Primary, secondary, or higher?</i></p> <p><i>Now I would like you to read this sentence to me</i></p>	<p>Education = overwhelmingly important</p> <p>Many valued educational opportunities for their children and would make significant personal sacrifices to educate their family, because of the perceived future benefits</p> <p>Achievement of education categories has a scaled/stepped value such that:</p> <ul style="list-style-type: none"> <li>- Basic literacy provides key life/household skills,</li> <li>- Primary education enhances one's basic range of life skills,</li> <li>- Secondary education seems to open the door to employment opportunities</li> <li>- Tertiary education allows the progression to secure employment and 'professionalism'</li> </ul> <p>Work = sacrifice</p> <p>Strong work ethics/mentality – work is dignity &amp; honour</p> <p>Personal identity linked to work especially in rural/agricultural settings where work consumes life</p> <p>Employment is central to survival</p> <p>Employment central to financial &amp; household security</p> <p>Informal, temporary work more common in women – more flexibility for home duties yet less empowerment</p> <p>Complementarity between partners in agricultural work</p> <p>Disempowerment driven by poverty</p> <p>More women than men unemployed or unpaid</p> <p>Men have more pressure to be breadwinners for family</p> <p>'Good' employment linked to solid educational base</p>
Labour	<ul style="list-style-type: none"> <li>Labour force participation rate/ratio (MDG, GII, GEI, GEIE, GGGI)</li> <li>Income/wage: absolute, gap, control over (WEAI, GEI, GEIE, GGGI, WEOI)</li> <li>Attitudes to employment (GEIE)</li> <li>Females in professional jobs (GGGI, GEIE)</li> <li>Employment discrimination (WEOI)</li> <li>Legal restrictions on job types for women (WEOI)</li> </ul> <p>Difference between statutory retirement age between men and women (WEOI)</p>	<p><b>Strong working mentality:</b> work linked to personal identity/pride</p> <p><b>Gendered labour roles</b> define career intentions and earning potential</p> <p><b>Work opportunities</b> and employment differ between men and women, often due to burden of family and domestic responsibilities</p> <p><b>Wage discrepancies</b></p> <p><b>Financial empowerment</b> and employment</p>	<p>Current work</p> <p>Informal work</p> <p>Occupation</p> <p>Vulnerable employment</p> <p>Seasonal work</p> <p>Payment and wages</p>	<p><i>Aside from your own housework, have you done any work in the last seven days?</i></p> <p><i>As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. In the last seven days, have you done any of these things or any other work?</i></p> <p><i>What is your occupation, that is, what kind of work do you mainly do?</i></p> <p><i>Do you do this work for a member of your family, for someone else, or are you self-employed?</i></p> <p><i>Do you usually work throughout the year, or do you work seasonally, or only once in a while?</i></p> <p><i>Are you paid in cash or kind for this work or are you not paid at all?</i></p>	<p>Work = sacrifice</p> <p>Strong work ethics/mentality – work is dignity &amp; honour</p> <p>Personal identity linked to work especially in rural/agricultural settings where work consumes life</p> <p>Employment is central to survival</p> <p>Employment central to financial &amp; household security</p> <p>Informal, temporary work more common in women – more flexibility for home duties yet less empowerment</p> <p>Complementarity between partners in agricultural work</p> <p>Disempowerment driven by poverty</p> <p>More women than men unemployed or unpaid</p> <p>Men have more pressure to be breadwinners for family</p> <p>'Good' employment linked to solid educational base</p>
Family sphere and domestic labour *	<ul style="list-style-type: none"> <li>Time use (WEAI)</li> <li>Discriminatory family code:</li> <li>Legal age at marriage (SIGI)</li> <li>Early marriage (SIGI)</li> <li>Parental authority (SIGI)</li> <li>Son bias:</li> <li>Missing women (SIGI)</li> <li>Fertility preferences (SIGI)</li> <li>Childcare services (WEOI)</li> </ul>	<p><b>Importance of family unit</b> to Peruvian culture</p> <p><b>Burden of domestic labour</b> falling on women/girls</p> <p><b>Domestic labour not economically valued</b></p>	<p>Childcare (limited)</p>	<p><i>Who normally looks after the children when you leave the house?</i></p>	<p>More women than men perform burden of domestic work</p> <p>No men are majority providers of domestic duties.</p> <ul style="list-style-type: none"> <li>- Domestic work = burden to women but not valued (by her or society). Although domestic work is a necessity - not valued as a "means to get ahead" like paid work</li> <li>- Housework = investment in wellbeing of children, ie next generation's betterment</li> <li>- Women take on double burden of work</li> <li>- Expectations, roles and stereotypes transmitted via the family.</li> </ul> <p>Machismo.</p>

	<ul style="list-style-type: none"><li>• Maternity and paternity leave and provision (WEOI)</li></ul>				
Decision-making	<ul style="list-style-type: none"><li>• Access to and decisions on credit (WEAI)</li><li>• Input in productive decisions (WEAI)</li><li>• Autonomy in production (WEAI)</li></ul>	<p><b>Head of household</b> – structure of decision process</p> <p><b>Decision making processes</b> between couples – who, where, what and how?</p> <p><b>Communication</b> and household decisions</p> <p><b>Decisions in context of resource shortage</b> – locally relevant decisions and purchases</p> <p><b>Healthcare decision making</b></p>	<p><b>Healthcare decision making</b></p> <p><i>Who usually makes decisions about health care for yourself?</i></p> <p><b>Household purchasing</b></p> <p><i>Who usually makes decisions about making major household purchases?</i></p> <p><b>Smaller household items</b></p> <p><i>Who usually makes decisions about making smaller daily household purchases?</i></p> <p><b>Cooking</b></p> <p><i>Who usually makes decisions about the type of food to cook?</i></p> <p><b>Family visiting</b></p> <p><i>Who usually makes decisions about visits to your family or relatives?</i></p>	<p>- Strong woman and opinions important for setting a role model and expectations.</p> <p>- Rivereños perform same pattern of work, traditionally delineated roles but seen as "working together" for sake of family, community</p> <p>- Link between machismo and male behavioural roles in the domestic sphere - how macho men would not participate around the house</p> <p>- Traditional gender roles are assumed until there is a necessity - in this case the male will step in and 'help out'</p> <p>Male decision-making dominant in financial decisions</p> <p>Decision-making influenced by living single or in a partnership. 'Single' seemed more empowering to women &gt; men</p> <p>Gender roles replicated in decision making process</p> <p>Dominance in decision-making reflects age/education diff.</p> <p>Lack of economic empowerment with age (no economic activity)</p> <p><u>In household purchases:</u></p> <p>- Despite joint/male decision process, women do hard work of actually buying the goods</p> <p>- Women perceived as 'knowing' house needs</p> <p>- Men seen as head of house</p> <p><u>In healthcare:</u></p> <p>- Women associated providing healthcare for family/ children</p> <p>- Men with education often act as health 'interpreter' for spouse</p> <p><u>In financial management:</u></p> <p>- Single women have greater decision-making power</p> <p>- Educated women report more power in financial decisions</p> <p>- Poverty limits decision making, drift to joint decisions out of necessity</p> <p>- Male breadwinners will often have more financial decision making power</p> <p>Earning linked to previous education</p> <p>Extreme resource shortage and poverty leads to equal levels of disempowerment</p> <p>Virtually no one in either context had access to credit or bank account – credits were sourced informally and savings were not secured in bank accounts</p> <p>Unpaid domestic labour restricts ability to participate in paid work</p> <p>Perception of joint decision – often male-dominated</p> <p>High level of financial dependence by women on men</p> <p>Empowerment from own earnings, higher education</p> <p>Majority of family earnings towards children/family needs</p> <p>Importance of social security systems for healthcare</p> <p>Power differentials driven by educational/ employment differentials</p> <p>Two overlapping disempowering influences – poverty and gender</p> <p>Importance of home ownership – security and stability</p>	
Financial empowerment	<ul style="list-style-type: none"><li>• Economic rights rating (GEIE)</li><li>• Inheritance (SIGI)</li><li>• Access to land (SIGI)</li><li>• Access to credit (SIGI)</li><li>• Access to property (SIGI)</li><li>• Control over income (WEAI)</li></ul> <p>Access to credit or finance (WEAI)</p>	<p><b>Financial empowerment</b> closely linked to safe employment</p> <p><b>Control over own earnings</b></p> <p><b>Access to credit or bank accounts</b> - limited</p>	<p><b>Financial decision making</b></p> <p><i>Who usually decides how the money you earn will be used: you, your (husband/partner), or you and your (husband/partner) jointly?</i></p> <p><b>Wage disparity</b></p> <p><i>Would you say that the money that you earn is more than what your (husband/partner) earns, less than what he earns, or about the same?</i></p> <p><b>Financial empowerment</b></p> <p><i>Who usually decides how your (husband's/partner's) earnings will be used: you, your (husband/partner), or you and your (husband/partner) jointly?</i></p> <p><b>Home ownership</b></p> <p><i>Do you own this or any other house either alone or jointly with someone else?</i></p>		
		House ownership was valued,			

Property, assets and ownership	<ul style="list-style-type: none"> <li>Property ownership rights (WEOI)</li> <li>Mobile phone subscriptions (WEOI)</li> <li>Ownership of assets (WEAI)</li> <li>Purchase, sale or transfer of assets (WEAI)</li> </ul> <p>Access to and decisions on credit (WEAI)</p>	<p><b>Mobile phones</b> used by both men and women in the city, but in rural areas this was normally controlled by the male</p> <p><b>Access to credit or bank accounts</b> was very limited in both populations, especially in those from rural areas.</p>	Land ownership	<p><i>Do you own any land either alone or jointly with someone else?</i></p>	<p>Inheritance, ownership and business laws driving equality between spouses</p> <p>However, property laws in Peruvian culture promote equality of asset ownership – thus, this is not able to be used as a discriminatory variable</p>
Community participation *	<ul style="list-style-type: none"> <li>Group membership (WEAI)</li> <li>Speaking in public (WEAI)</li> </ul>	<p><b>Community groups</b> – presence of groups and support network</p> <p><b>Community meetings</b> – participation and decision making at community level</p> <p><b>Voice and power</b> – men and women, roles and power</p>		<p><i>Not assessed by ENDES</i></p>	<p>Group membership and participation</p> <p>Community meetings and participation</p> <p>Local community groups include APAFA, Juntos, Vaso de Leche</p> <p>Sporting teams</p> <p>Labour/agricultural cooperative participation</p> <p>Informal networks of support</p> <p>Roles and leadership structure within community groups</p>
Leadership and political representation^	<ul style="list-style-type: none"> <li>Proportion women in national parliament (GGGI)</li> <li>Female head of state over 50 years (GGGI)</li> <li>Attitudes to female politicians (GEIE)</li> <li>Percentage of female legislators, managers, senior officials (GEIE)</li> <li>Technical employment and managerial roles (GEI)</li> </ul>	<p><b>Local political structure</b> – balance of men and women</p> <p><b>Leadership opportunities</b> – for personal empowerment and leadership of others</p> <p><b>Perception of equality in leadership</b></p>		<p><i>Not assessed by ENDES</i></p>	<p>- Machismo impacts upon the balance of male and female political representation.</p> <p>- Change in political/leadership landscapes which has seen an entry of more women into positions of power and public presence.</p> <p>- Women tended to have local roles pre-defined by specific government programmes such as Juntos, whereas men tended to fulfil more formal “community head” and political representative roles.</p> <p>- Leaders are held in high respect by many with some pessimism by a few</p> <p>- Women are perceived as being more trustworthy and hardworking as leaders, being influenced by their typical gender roles such as in the domestic sphere</p> <p>- Men fill more leadership and political positions than women still</p> <p>- In local and regional levels, a quota system is in place ensuring at least 30% women candidates are put forward for each election, meaning some regulation of political candidate equality</p>
Health	<ul style="list-style-type: none"> <li>MMR (GII, SIGI)</li> <li>AFR (GII, WEOI)</li> <li>Female to male mortality rate ratio (GEIE)</li> <li>HIV (SIGI)</li> </ul>	<p><b>Healthcare decisions</b> – empowerment and communication around healthcare</p> <p><b>Access to healthcare</b> – gender, <b>Health outcomes</b> – reflection of gendered inequalities</p>	<p>Barriers to health access</p> <p>Healthcare access</p> <p>Health insurance</p> <p>Weight</p> <p>Anaemia</p>	<p><i>When you are sick and want to get medical advice or treatment, is each of the following a big problem or not?</i></p> <p><i>Getting permission to go to the doctor?</i></p> <p><i>Getting money needed for advice or treatment?</i></p> <p><i>The distance to the health facility?</i></p> <p><i>Not wanting to go alone?</i></p> <p><i>In the last 12 months, have you visited a health facility for care for yourself (or your children)?</i></p> <p><i>Covered by health insurance (seguro integral)</i></p> <p><i>Measured empirically</i></p> <p><i>Measured empirically</i></p>	<p>Health and gender linked through:</p> <ul style="list-style-type: none"> <li>Physical violence</li> <li>Access to healthcare</li> <li>Structural health</li> <li>Family planning</li> <li>Sexual and reproductive health</li> <li>Emotional and mental health</li> </ul>

Family planning	Fertility preferences (SIGI)	<p><b>Access to family planning</b> – barriers to access and use</p> <p><b>Knowledge and education</b> – empowerment to use</p> <p><b>Use of family planning</b> – modern FP method</p> <p><b>Communication in partnerships</b> around contraceptive options</p>	<p>Contraception use Modern contraception use Unmet need</p> <p>Contraception decision making</p> <p>Sexual health negotiation</p> <p>Negotiation of sex 1</p> <p>Negotiation of sex 2</p> <p>Negotiation of condom use</p> <p>Attitudes towards wife-beating</p> <p>Number of control issues with spouse</p> <p>Emotional violence</p>	<p><i>Are you currently doing something or using any method to delay or avoid getting pregnant? Which method are you using?</i></p> <p><i>Would you like to have (a/another) child, or would you prefer not to have any (more) children?</i></p> <p><i>Would you say that using contraception is mainly your decision, mainly your (husband's/partner's) decision, or did you both decide together?</i></p> <p><i>If a wife knows her husband has a disease that she can get during sexual intercourse, is she justified in asking that they use a condom when they have sex?</i></p> <p><i>Is a wife justified in refusing to have sex with her husband when she knows he has sex with other women?</i></p> <p><i>Can you say no to your (husband/partner) if you do not want to have sexual intercourse?</i></p> <p><i>Could you ask your (husband/partner) to use a condom if you wanted him to?</i></p> <p><i>In your opinion, is a husband justified in hitting or beating his wife in the following situations:</i>  <i>If she goes out without telling him?</i>  <i>If she neglects the children?</i>  <i>If she argues with him?</i>  <i>If she refuses to have sex with him?</i>  <i>If she burns the food?</i></p> <p><i>He (is/was) jealous or angry if you (talk/talked) to other men?</i>  <i>He frequently (accuses/accused) you of being unfaithful?</i>  <i>He (does/did) not permit you to meet your female friends?</i>  <i>He (tries/tried) to limit your contact with your family?</i>  <i>He (insists/insisted) on knowing where you (are/were) at all times?</i></p> <p><i>Does your partner ever:</i>  <i>say or do something to humiliate you in front of others?</i>  <i>threaten to hurt or harm you or someone you care about?</i>  <i>insult you or make you feel bad about yourself?</i></p>	<p>- Family planning important to control family size and therefore life financial burden on the family</p> <p>- STD prevention and condom usage</p> <p>- Lack of faith in partner's fidelity</p> <p>- The importance of family planning and smaller family size would be apparent in reducing maternal and childhood mortality and also delaying pregnancy until an older age.</p> <p>- Some women describe the pressure to have sex from her husband and how the responsibility was on her to avoid pregnancy - it was like she had to be hyper vigilant</p> <p>- Links between religion and parental behaviours affecting her use and approach to contraception</p> <p>- Familial transmission of violent behaviour</p> <p>- Communication between spouses was also positioned as a means by which to overcome violence</p> <p>- On the whole, many people recognised that violence was a problem. Some were resigned to the fact that it existed despite being anti-VAW</p> <p>- Importance of intra-household norms and role models in promoting anti-violent behaviours</p> <p>- Communication, education around human rights and use of its concepts and language are a means to protect and W</p> <p>- If under-reporting and not denouncing violence y/marianismo and the promulgation of violence</p>
VAW	Rate of VAW (SIGI)	<p><b>Prevalence of VAW</b> – personal or community-level</p> <p><b>Attitudes to VAW</b> – permissive cultural context</p> <p><b>Programs and prevention of VAW</b></p>			

Age and power			Less severe violence	Does your partner ever: push you, shake you, or throw something at you?	
				slap you? twist your arm or pull your hair? punch you with his fist or with something that could hurt you?	
			Severe violence	kick you, drag you, or beat you up? try to choke you or burn you on purpose? threaten or attack you with a knife, gun, or other weapon?	
			Sexual violence	physically force you to have sexual intercourse with him when you did not want to? physically force you to perform any other sexual acts you did not want to? force you with threats or in any other way to perform sexual acts you did not want to?	
Traditional customs	<ul style="list-style-type: none"> <li>Attitude to existence of traditional customs (GEIE)</li> <li>Rate of FGM (SIGI)</li> </ul>	<p><b>Marriage or pregnancy &lt;18 years of age</b> – reflects sub-optimal life maturity and impact on life opportunities</p> <p><b>Age differentials</b> in a partnership where men are older and women are younger</p> <p>Although traditional customs still existed in some rural areas, there were no harmful cultural practices such as FGM</p>	Age at first co-habitation	In what month and year did you start living with your (husband/partner)?	<ul style="list-style-type: none"> <li>Importance of maturity in age at first marriage for women – power, relationship dynamics etc.</li> <li>Education and employment opportunities limited by early marriage and/or childbirth</li> <li>Love and communication essential in partnerships</li> <li>Age/employment/ education differentials may drive power differentials in relationship</li> </ul>
			Age at first birth and parity	Now I would like to ask about all the births you have had during your life. Have you ever given birth?	
			Age at first sexual activity	How old were you when you had sexual intercourse for the very first time?	
Freedom of movement	<ul style="list-style-type: none"> <li>Access to public space (SIGI)</li> <li>Freedom of movement for women (WEOI)</li> </ul>	<p>On the whole, there were no explicit limitations on personal movement, with many women engaging in activities in public spaces</p>	-	-	-
			-	-	-

## CHAPTER 4/5: SELECTION OF ITEMS FOR FACTOR ANALYSIS

DOMAIN	Potential indicators emerging from qualitative interviews	Content of current international, aggregate indices	ENDES 2015 Items Area	Questionnaire wording	Validation of items through cognitive interviews	Item for inclusion in WAGE Score
Education	<p><b>Literacy</b> – for basic transactions</p> <p><b>Primary education</b> – generally available and accessible for both genders</p> <p><b>Secondary education</b> – important foundation for employment, school drop-out rates high</p> <p><b>Tertiary education</b> – high respect and security</p>	<ul style="list-style-type: none"> <li>Adult literacy rates/ratio (GEI, GEIE, GGGI, WEOI)</li> <li>Gender parity index (primary, secondary, tertiary) (GEI, GEIE, GGGI, MDG)</li> <li>Secondary education rates (GII)</li> <li>Attitudes to female education (GEIE)</li> <li>Women's school life expectancy (WEOI)</li> </ul>	<p>School attendance</p> <p>Educational attainment</p> <p>Literacy</p>	<p><i>Have you ever attended school?</i></p> <p><i>What is the highest level of school you attended? Primary, secondary, or higher?</i></p> <p><i>Now I would like you to read this sentence to me</i></p>	<p>Education = overwhelmingly important</p> <p>Many valued educational opportunities for their children and would make significant personal sacrifices to educate their family, because of the perceived future benefits</p> <p>Achievement of education categories has a scaled/stepped value such that:</p> <ul style="list-style-type: none"> <li>- Basic literacy provides key life/household skills,</li> <li>- Primary education enhances one's basic range of life skills,</li> <li>- Secondary education seems to open the door to employment opportunities</li> <li>- Tertiary education allows the progression to secure employment and 'professionalism'</li> </ul>	<p>Individual-level achievements, comparison with partner across:</p> <ul style="list-style-type: none"> <li>- Literacy</li> <li>- Schooling</li> </ul> <p><b>N=3 ITEMS</b></p> <ol style="list-style-type: none"> <li><b>1. Individual education</b></li> <li><b>2. Individual literacy</b></li> <li><b>3. Comparison with partner's education</b></li> </ol>
Labour	<p><b>Strong working mentality:</b> work linked to personal identity/pride</p> <p><b>Gendered labour roles</b> define career intentions and earning potential</p> <p><b>Work opportunities</b> and employment differ between men and women, often due to burden of family and domestic responsibilities</p> <p><b>Wage discrepancies</b></p> <p><b>Financial empowerment</b> and employment</p>	<ul style="list-style-type: none"> <li>Labour force participation rate/ratio (MDG, GII, GEI, GEIE, GGGI)</li> <li>Income/wage: absolute, gap, control over (WEAI, GEI, GEIE, GGGI, WEOI)</li> <li>Attitudes to employment (GEIE)</li> <li>Females in professional jobs (GGGI, GEIE)</li> <li>Employment discrimination (WEOI)</li> <li>Legal restrictions on job types for women (WEOI)</li> <li>Difference between statutory retirement age between men and women (WEOI)</li> </ul>	<p>Current work</p> <p>Informal work</p> <p>Occupation</p> <p>Vulnerable employment</p> <p>Seasonal work</p> <p>Payment and wages</p>	<p><i>Aside from your own housework, have you done any work in the last seven days?</i></p> <p><i>As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. In the last seven days, have you done any of these things or any other work?</i></p> <p><i>What is your occupation, that is, what kind of work do you mainly do?</i></p> <p><i>Do you do this work for a member of your family, for someone else, or are you self-employed?</i></p> <p><i>Do you usually work throughout the year, or do you work seasonally, or only once in a while?</i></p> <p><i>Are you paid in cash or kind for this work or are you not paid at all?</i></p>	<p>Work = sacrifice</p> <p>Strong work ethics/mentality – work is dignity &amp; honour</p> <p>Personal identity linked to work especially in rural/agricultural settings where work consumes life</p> <p>Employment is central to survival</p> <p>Employment central to financial &amp; household security</p> <p>Informal, temporary work more common in women – more flexibility for home duties yet less empowerment</p> <p>Complementarity between partners in agricultural work</p> <p>Disempowerment driven by poverty</p> <p>More women than men unemployed or unpaid</p> <p>Men have more pressure to be breadwinners for family</p> <p>'Good' employment linked to solid educational base</p>	<p>Individual employment and differences with partner and household</p> <p>Vulnerability of employment: seasonality, informal work</p> <p>Payment for work: unpaid, in-kind, money</p> <p>Wage difference between partners</p> <p><b>N=4 ITEMS</b></p> <ol style="list-style-type: none"> <li><b>1. Employment</b></li> <li><b>2. Vulnerable employment</b></li> <li><b>3. Difference with partner in employment</b></li> <li><b>4. Difference with partner in vulnerable employment</b></li> </ol>

Family sphere and domestic labour *	<p>Importance of family unit to Peruvian culture</p> <p>Burden of domestic labour falling on women/girls</p> <p>Domestic labour not economically valued</p>	<ul style="list-style-type: none"><li>• Time use (WEAI)</li><li>• Discriminatory family code:</li><li>• Legal age at marriage (SIGI)</li><li>• Early marriage (SIGI)</li><li>• Parental authority (SIGI)</li><li>• Son bias:</li><li>• Missing women (SIGI)</li><li>• Fertility preferences (SIGI)</li><li>• Childcare services (WEOI)</li><li>• Maternity and paternity leave and provision (WEOI)</li></ul>			<p>More women than men perform burden of domestic work</p> <p>No men are majority providers of domestic duties.</p>	<p>There is a need for inclusion of time use studies and/or assessment of burden of domestic labour – not available in ENDES</p>	
					<p>- Domestic work = burden to women but not valued (by her or society). Although domestic work is a necessity - not valued as a "means to get ahead" like paid work</p> <p>- Housework = investment in wellbeing of children, ie next generation's betterment</p> <p>- Women take on double burden of work</p> <p>- Expectations, roles and stereotypes transmitted via the family. Machismo.</p> <p>- Strong woman and opinions important for setting a role model and expectations.</p> <p>- Riverenos perform same pattern of work, traditionally delineated roles but seen as "working together" for sake of family, community</p> <p>- Link between machismo and male behavioural roles in the domestic sphere - how macho men would not participate around the house</p> <p>- Traditional gender roles are assumed until there is a necessity - in this case the male will step in and ‘help out’</p>	<p>Burden of domestic duties needs evaluation – not available in ENDES</p>	
					<p>Male decision-making dominant in financial decisions</p> <p>Decision-making influenced by living single or in a partnership. ‘Single’ seemed more empowering to women &gt; men</p> <p>Gender roles replicated in decision making process</p> <p>Dominance in decision-making reflects age/education diff.</p> <p>Lack of economic empowerment with age (no economic activity)</p> <p><u>In household purchases:</u></p> <p>- Despite joint/male decision process, women do hard work of actually buying the goods</p> <p>- Women perceived as ‘knowing’ house needs</p> <p>- Men seen as head of house</p> <p><u>In healthcare:</u></p> <p>- Women associated providing healthcare for family/ children</p> <p>- Men with education often act as health ‘interpreter’ for spouse</p> <p><u>In financial management:</u></p> <p>- Single women have greater decision-making power</p> <p>- Educated women report more power in financial decisions</p>	<p>Small proportion of overall dataset discuss child discipline</p>	
Decision-making	<p>Head of household – structure of decision process</p> <p>Decision making processes between couples – who, where, what and how?</p> <p>Communication and household decisions</p> <p>Decisions in context of resource shortage – locally relevant decisions and purchases</p> <p>Healthcare decision making</p>	<ul style="list-style-type: none"><li>• Access to and decisions on credit (WEAI)</li><li>• Input in productive decisions (WEAI)</li><li>• Autonomy in production (WEAI)</li></ul>	<p>Healthcare decision making</p> <p>Household purchasing</p> <p>Smaller household items</p> <p>Cooking</p> <p>Family visiting</p>	<p>Who usually makes decisions about health care for yourself?</p> <p>Who usually makes decisions about making major household purchases?</p> <p>Who usually makes decisions about making smaller daily household purchases?</p> <p>Who usually makes decisions about the type of food to cook?</p> <p>Who usually makes decisions about visits to your family or relatives?</p>		<p>N=1 ITEM ?</p> <ol style="list-style-type: none"><li>1. Who takes care of the children? (NO DATA, ASSUMES CHILDREN)</li></ol>	<p>Decision making in partnerships reflects a process of negotiation and power differentials in a relationship, and thus is a strong reflection of gender dynamics.</p> <p>Indicators variables include:</p>
						<p>N=6 ITEMS</p> <ol style="list-style-type: none"><li>1. Main decision-maker, husband’s money</li><li>2. Main decision-maker, large purchases</li><li>3. Main decision-maker, small purchases</li><li>4. Main decision-maker, food</li><li>5. Main decision-maker, visits</li><li>6. Healthcare decisions between partners</li></ol>	

Financial empowerment	<p>Financial empowerment closely linked to safe employment</p> <p><b>Control over own earnings</b></p> <p><b>Access to credit or bank accounts</b> - limited</p>	<ul style="list-style-type: none"> <li>• Economic rights rating (GEIE)</li> <li>• Inheritance (SIGI)</li> <li>• Access to land (SIGI)</li> <li>• Access to credit (SIGI)</li> <li>• Access to property (SIGI)</li> <li>• Control over income (WEAI)</li> <li>• Access to credit or finance (WEAI)</li> </ul>	<p>Financial decision making</p> <p>Wage disparity</p> <p>Financial empowerment</p>	<p><i>Who usually decides how the money you earn will be used: you, your (husband/partner), or you and your (husband/partner) jointly?</i></p> <p><i>Would you say that the money that you earn is more than what your (husband/partner) earns, less than what he earns, or about the same?</i></p> <p><i>Who usually decides how your (husband's/partner's) earnings will be used: you, your (husband/partner), or you and your (husband/partner) jointly?</i></p>	<p>- Poverty limits decision making, drift to joint decisions out of necessity</p> <p>- Male breadwinners will often have more financial decision making power</p> <p>Earning linked to previous education</p> <p>Extreme resource shortage and poverty leads to equal levels of disempowerment</p> <p>Virtually no one in either context had access to credit or bank account – credits were sourced informally and savings were not secured in bank accounts</p> <p>Unpaid domestic labour restricts ability to participate in paid work</p> <p>Perception of joint decision – often male-dominated</p> <p>High level of financial dependence by women on men</p> <p>Empowerment from own earnings, higher education</p> <p>Majority of family earnings towards children/family needs</p> <p>Importance of social security systems for healthcare</p> <p>Power differentials driven by educational/ employment differentials</p> <p>Two overlapping disempowering influences – poverty and gender</p> <p>Importance of home ownership – security and stability</p> <p>Inheritance, ownership and business laws driving equality between spouses</p> <p>However, property laws in Peruvian culture promote equality of asset ownership – thus, this is not able to be used as a discriminatory variable</p>	<p>Financial decisions</p> <p>Control over income</p> <p>Individual knowledge/use of credit and financial support</p> <p>There is no discriminatory value of including questions on access to credit or bank accounts because of almost total lack of either in both study contexts.</p> <p><b>N=2</b></p> <ol style="list-style-type: none"> <li><b>1. Waged employment</b></li> <li><b>2. Main decision-maker, spending</b></li> </ol> <p>Whilst ownership of land, house, or other assets may demonstrate individual economic empowerment or wealth, these values have no value in discriminating between genders</p> <p><b>N=0</b></p> <p>Potential indicators needing collection (not currently available in ENDES):</p> <ul style="list-style-type: none"> <li>- Membership of community group</li> <li>- Participation in community group</li> <li>- Leadership of community group</li> <li>- Community-level decision making</li> </ul> <p>Not available in ENDES</p> <p><b>N=0</b></p>
Property, assets and ownership	-	<ul style="list-style-type: none"> <li>• Property ownership rights (WEOI)</li> <li>• Mobile phone subscriptions (WEOI)</li> <li>• Ownership of assets (WEAI)</li> <li>• Purchase, sale or transfer of assets (WEAI)</li> <li>• Access to and decisions on credit (WEAI)</li> </ul>	<p>Home ownership</p> <p>Land ownership</p>	<p><i>Do you own this or any other house either alone or jointly with someone else?</i></p> <p><i>Do you own any land either alone or jointly with someone else?</i></p>		
Community participation *	<p><b>Community groups</b> – presence of groups and support network</p> <p><b>Community meetings</b> – participation and decision making at community level</p> <p><b>Voice and power</b> – men and women, roles and power</p>	<ul style="list-style-type: none"> <li>• Group membership (WEAI)</li> <li>• Speaking in public (WEAI)</li> </ul>			<p>Group membership and participation</p> <p>Community meetings and participation</p> <p>Local community groups include APAFA, Juntos, Vaso de Leche</p> <p>Sporting teams</p> <p>Labour/agricultural cooperative participation</p> <p>Informal networks of support</p> <p>Roles and leadership structure within community groups</p>	



Leadership and political representation ^	<p><b>Local political structure</b> – balance of men and women</p> <p><b>Leadership opportunities</b> – for personal empowerment and leadership of others</p> <p><b>Perception of equality in leadership</b></p>	<ul style="list-style-type: none"> <li>• Proportion women in national parliament (GGGI)</li> <li>• Female head of state over 50 years (GGGI)</li> <li>• Attitudes to female politicians (GEIE)</li> <li>• Percentage of female legislators, managers, senior officials (GEIE)</li> <li>• Technical employment and managerial roles (GEI)</li> </ul>			<p>- Machismo impacts upon the balance of male and female political representation.</p> <p>- Change in political/leadership landscapes which has seen an entry of more women into positions of power and public presence.</p> <p>- Women tended to have local roles pre-defined by specific government programs such as Juntos, whereas men tended to fulfil more formal “community head” and political representative roles.</p> <p>- Leaders are held in high respect by many with some pessimism by a few</p> <p>- Women are perceived as being more trustworthy and hardworking as leaders, being influenced by their typical gender roles such as in the domestic sphere</p> <p>- Men fill more leadership and political positions than women still</p> <p>- In local and regional levels, a quota system is in place ensuring at least 30% women candidates are put forward for each election, meaning some regulation of political candidate equality</p>	<p>Knowledge of local political leaders</p> <p>Gender share of local politicians</p> <p>Perception of equality in community leadership structures</p> <p>Not available in ENDES</p> <p><b>N=0</b></p>
Health	<p><b>Healthcare decisions</b> – empowerment and communication around healthcare</p> <p><b>Access to healthcare</b> – gender,</p> <p><b>Health outcomes</b> – reflection of gendered inequalities</p>	<ul style="list-style-type: none"> <li>• MMR (GII, SIGI)</li> <li>• AFR (GII, WEOI)</li> <li>• Female to male mortality rate ratio (GEIE)</li> <li>• HIV (SIGI)</li> </ul>	<p>Barriers to health access</p> <p>Healthcare access</p> <p>Health insurance</p> <p>Weight</p> <p>Anaemia</p>	<p><i>When you are sick and want to get medical advice or treatment, is each of the following a big problem or not?</i></p> <p><i>Getting permission to go to the doctor?</i></p> <p><i>Getting money needed for advice or treatment? The distance to the health facility?</i></p> <p><i>Not wanting to go alone?</i></p> <p><i>In the last 12 months, have you visited a health facility for care for yourself (or your children)?</i></p> <p><i>Covered by health insurance (seguro integral)</i></p> <p><i>Measured empirically</i></p> <p><i>Measured empirically</i></p>	<p>Health and gender linked through:</p> <ul style="list-style-type: none"> <li>- Physical violence</li> <li>- Access to healthcare</li> <li>- Structural health</li> <li>- Family planning</li> <li>- Sexual and reproductive health</li> <li>- Emotional and mental health</li> </ul>	<p>Barriers to healthcare quantifiable:</p> <p>- Access to healthcare</p> <p>Knows where to go</p> <p>Getting permission to go</p> <p>Getting money to go</p> <p>Not wanting to go alone</p> <p>No female health staff</p> <p>Use of healthcare (insurance and visits to clinics) and nutrition (BMI and anaemia) were</p> <p><b>N=9 ITEMS</b></p> <ol style="list-style-type: none"> <li><b>1. Access to healthcare</b></li> <li><b>2. Health insurance</b></li> <li><b>3. BMI</b></li> <li><b>4. Anaemia</b></li> <li><b>5. Access to health (n=5)</b></li> </ol> <p>There is a need for inclusion of contraception use and family planning preferences in international indexes</p> <p><b>N=3 ITEMS</b></p>
Family planning	<p><b>Access to family planning</b> – barriers to access and use</p> <p><b>Knowledge and education</b> – empowerment to use</p>	<ul style="list-style-type: none"> <li>• Fertility preferences (SIGI)</li> </ul>	<p>Contraceptive use</p> <p>Modern contraceptive use</p>	<p><i>Are you currently doing something or using any method to delay or avoid getting pregnant?</i></p> <p><i>Which method are you using?</i></p>	<p>- Family planning important to control family size and therefore life financial burden on the family</p> <p>- STD prevention and condom usage</p> <p>- Lack of faith in partner’s fidelity</p> <p>- The importance of family planning and smaller family size would be apparent in reducing maternal and</p>	

Use of family planning –  
modern FP method  
Communication in  
partnerships around  
contraceptive options

Unmet need	<i>Would you like to have (a/another) child, or would you prefer not to have any (more) children?</i>
Contraception decision making	<i>Would you say that using contraception is mainly your (husband's/partner's) decision, or did you both decide together?</i>
Sexual health negotiation	<i>If a wife knows her husband has a disease that she can get during sexual intercourse, is she justified in asking that they use a condom when they have sex?</i>
Negotiation of sex 1	<i>Is a wife justified in refusing to have sex with her husband when she knows he has sex with other women?</i>
Negotiation of sex 2	<i>Can you say no to your (husband/partner) if you do not want to have sexual intercourse?</i>
Negotiation of condom use	<i>Could you ask your (husband/partner) to use a condom if you wanted him to?</i>

childhood mortality and also delaying pregnancy until an older age.  
- Some women describe the pressure to have sex from her husband and how the responsibility was on her to avoid pregnancy - it was like she had to be hyper vigilant  
- Links between religion and parental behaviours affecting her use and approach to contraception

1. Unmet need for contraception
2. Contraception decision making
3. Access to condom

VAW	<p><b>Prevalence of VAW</b> – personal or community-level</p> <p><b>Attitudes to VAW</b> – permissive cultural context</p> <p><b>Programs and prevention</b> of VAW</p>	<ul style="list-style-type: none"> <li>Rate of VAW (SIGI)</li> </ul>	<p>Attitudes towards wife-beating</p>	<p><i>In your opinion, is a husband justified in hitting or beating his wife in the following situations:</i></p> <p><i>If she goes out without telling him?</i></p> <p><i>If she neglects the children?</i></p> <p><i>If she argues with him?</i></p> <p><i>If she refuses to have sex with him?</i></p> <p><i>If she burns the food?</i></p>	<ul style="list-style-type: none"> <li>- Familial transmission of violent behaviour</li> <li>- Communication between spouses was also positioned as a means by which to overcome violence</li> <li>- On the whole, many people recognised that violence was a problem. Some were resigned to the fact that it existed despite being anti-VAW</li> <li>- Importance of intra-household norms and role models in promoting anti-violent behaviours</li> <li>- Beyond communication, education around human rights and use of human rights concepts and language are a means to protect and prevent VAW</li> <li>- Problem of under-reporting and not denouncing violence</li> <li>- Machismo/marianismo and the promulgation of violence</li> </ul>	<p>Inclusion of violence attitudes and individual experiences of violence possible. Individual reports of violence are lower than lifetime prevalence estimates and may be affected by under-reporting</p>
						<p><b>N=6 ITEMS</b></p> <ol style="list-style-type: none"> <li><b>Wife beating justified</b></li> <li><b>Control issues with partner</b></li> <li><b>Emotional violence</b></li> <li><b>Less severe physical violence</b></li> <li><b>More severe physical violence</b></li> <li><b>Sexual violence</b></li> </ol>
			<p>Number of control issues with spouse</p>	<p><i>He (is/was) jealous or angry if you (talk/talked) to other men?</i></p> <p><i>He frequently (accuses/accused) you of being unfaithful?</i></p> <p><i>He (does/did) not permit you to meet your female friends?</i></p> <p><i>He (tries/tried) to limit your contact with your family?</i></p> <p><i>He (insists/insisted) on knowing where you (are/were) at all times?</i></p>		
			<p>Emotional violence</p>	<p><i>Does your partner ever:</i></p> <p><i>say or do something to humiliate you in front of others?</i></p> <p><i>threaten to hurt or harm you or someone you care about?</i></p> <p><i>insult you or make you feel bad about yourself?</i></p>		
			<p>Less severe violence</p>	<p><i>Does your partner ever: push you, shake you, or throw something at you?</i></p> <p><i>slap you? twist your arm or pull your hair?</i></p> <p><i>punch you with his fist or with something that could hurt you?</i></p>		
			<p>Severe violence</p>	<p><i>kick you, drag you, or beat you up?</i></p> <p><i>try to choke you or burn you on purpose?</i></p>		

Age and power	<p><b>Marriage or pregnancy &lt;18 years of age</b> – reflects sub-optimal life maturity and impact on life opportunities</p> <p><b>Age differentials</b> in a partnership where men are older and women are younger</p>		<p>Sexual violence</p> <p><i>threaten or attack you with a knife, gun, or other weapon?</i></p> <p><i>physically force you to have sexual intercourse with him when you did not want to?</i></p> <p><i>physically force you to perform any other sexual acts you did not want to?</i></p> <p><i>force you with threats or in any other way to perform sexual acts you did not want to?</i></p>		<p>Age at first co-habitation</p> <p>Age at first birth and parity</p> <p>Age at first sexual activity</p> <p><i>In what month and year did you start living with your (husband/partner)?</i></p> <p><i>Now I would like to ask about all the births you have had during your life. Have you ever given birth?</i></p> <p><i>How old were you when you had sexual intercourse for the very first time?</i></p>	<p>- Importance of maturity in age at first marriage for women – power, relationship dynamics etc.</p> <p>- Education and employment opportunities limited by early marriage and/or childbirth</p> <p>- Love and communication essential in partnerships</p> <p>- Age/employment/ education differentials may drive power differentials in relationship</p>	<p>Age differentials not explicitly addressed in EDNES but can be derived from the available data</p> <p><b>N=3 ITEMS</b></p> <ol style="list-style-type: none"> <li><b>Age of first birth</b></li> <li><b>Age of first cohabitation</b></li> <li><b>Age differences between partners</b></li> </ol>

## CHAPTER 5: GENDER ITEMS, TRANSFORMATION, AND FACTOR ANALYSIS

Qualitatively derived Indicators and domains		Domains and indicators derived from EFA		FINAL DOMAINS AND INDICATORS, CFA	
DOMAIN	ITEMS	DOMAIN	ITEMS	DOMAIN	ITEMS
Education	Educational attainment	Education and choice	Educational attainment	Education and choice	Educational attainment
	Literacy		Literacy		Literacy
			Access to condom if necessary*		Access to condom if necessary
			Age at first marriage***		Age at first sexual intercourse ^^
Employment	Currently working	Employment	Currently working	Employment	Currently working
	Vulnerable employment		Vulnerable employment		Vulnerable employment
	Hierarchy of employment		Hierarchy of employment		Hierarchy of employment
	Wages for work		Wages for work		Wages for work
Health access and family planning	Visit to health facility within the last 12months	-	-	-	-
	Coverage by health insurance		-		-
	Unmet need for FP		-		-
	Knows of contraception method		-		-
	Access to condom if necessary		-		-
Health empowerment	Knows where to go	Health empowerment	Knows where to go to get healthcare	Health empowerment	Knows where to go to get healthcare
	Getting permission to go		Getting money to for healthcare		Getting money to for healthcare
	Getting money to go		Not wanting to go alone		Not wanting to go alone
	Not wanting to go alone		No female health providers		No female health providers
	No female health providers				
Age and maturity**	Age at first marriage	Age at marriage and first intercourse ^	Age at first marriage	-	-
	Age at first intercourse		Age at first intercourse		-
Permissive attitudes to wife beating	If she goes out without telling	Permissive attitudes to wife beating	If she goes out without telling	Permissive attitudes to wife beating	If she goes out without telling
	If she neglects the children		If she neglects the children		If she neglects the children
	If she argues with him		If she argues with him		If she argues with him
	If she refuses sex		If she refuses sex		If she refuses sex
	If she burns the food		If she burns the food		If she burns the food

- EFA: \* The access to condom item shifted to a new domain, labelled “education and choice”
- \*\* The domain “Age and maturity” was renamed to “Age at marriage and first intercourse” to more accurately reflect the domain
- \*\*\* The age at first marriage item loaded onto both the ‘education and choice’ and the “Age at marriage and first intercourse” domains.
- CFA: ^ The domain “age at marriage and first intercourse” was dropped because of model non-convergence
- ^^ The item age of first sexual intercourse replaced the item age of first marriage in the “education and choice” domain

Qualitatively derived Indicators and Domains		Domains and indicators derived from EFA		FINAL DOMAINS AND INDICATORS, CFA	
DOMAIN	ITEMS	DOMAIN	ITEMS	DOMAIN	ITEMS
Partner differences	Difference in education	Labour differences	Wage differences	Labour differences	Wage differences
	Difference in employment		Difference in employment		Difference in employment
	Differences in vulnerable employment		Differences in vulnerable employment		Differences in vulnerable employment
	Differences in wages	Education and the house		-	-
	Age differences >10 years		Difference in education^		-
	Household headship		Decision on food to cook ^^		-
Decision-making	Contraception	Decision-making		Decision-making	Contraception^^^
	Husband's money		Husband's money		Husband's money
	Healthcare		Healthcare		Healthcare
	Large household purchases		Large household purchases		Large household purchases
	Daily household purchases		Daily household purchases		Daily household purchases
	Visit to family		Visit to family		Visit to family
	Food to cook		Food to cook		Food to cook
VAW	Control	VAW	If she goes out without telling	VAW	If she goes out without telling
	Emotional		If she neglects the children		If she neglects the children
	Minor physical		If she argues with him		If she argues with him
	Major physical		If she refuses sex		If she refuses sex
	Sexual		If she burns the food		If she burns the food
-		Contraception decision & use	Decision maker contraception*	-	-
			Unmet need for contraception**		-

EFA:

\* The decision maker for contraception item shifted to a new domain, labelled "contraception decision & use"

\*\* Unmet need for contraception was reclassified to the GE Score items and belongs to the domain, labelled "contraception decision & use"

CFA:

^ The differences in education item led to model non-convergence and was not associated with other constructs so was dropped

^^ The decision on food to cook item remained in the "decision-making" domain

^^^ The decision maker for contraception item shifted to the "decision making" domain and the unmet need for contraception item was dropped

